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ABSTRACT

The report summarizes research on the development and standardization of objectively scored language and adjustment scales for five cards of the Thematic Apperception Test (TAT) used in the Health Examination Survey of a subsample of 1,398 youths 12-to 17-years-old. Described is the development of cognitive and personality measures derived from scores on oral TAT protocols as well as the development of behavioral and rating measures of health and intellectual, academic, and social functioning for use as criteria in the evaluation of TAT factors. It is explained that an important finding was that language development as assessed by the TAT scales is essentially completed by adolescence. A major portion of the document is devoted to 22 supplementary statistical tables and to appendixes which include a scoring manual and sample health examination survey forms. (LH)

DATA EVALUATION AND METHODS RESEARCH

Series 2
Number 62

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Language and Adjustment Scales for the Thematic Apperception Test for Youths 12-17 Years

A report on the development and standardization of objective scoring procedures for five cards of the TAT used in the Health Examination Survey of youths 12-17 years of age.

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COOPERATION OF THE BUREAU OF THE CENSUS

In accordance with specifications established by the National Center for Health Statistics, the Bureau of the Census, under a contractual agreement, participated in the design and selection of the sample, and carried out the first stage of the field interviewing and certain parts of the statistical processing for the Health Examination Survey.

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FOREWORD

This is the second and final report summarizing research carried out under a research contract with the National Center for Health Statistics by the Institute of Behavioral Research, Texas Christian University, on the development of objectively scored cognitive and affective scales for the Thematic Apperception Test (TAT). The data for the study were obtained from story protocols given in response to the five-card, orally administered and tape-recorded version of the TAT used in the Health Examination Survey of youths 12-17 years old completed in 1970. A previous report in this series summarized similar research using data from the Health Examination Survey of children 6-11 years. In keeping with the survey's focus on characteristics associated with growth and development, the TAT research was directed toward the construction of an objective scoring system and the formulation of scales useful in the assessment of psychological development and normal behavior.

The objectives and procedures of the present study stand in sharp contrast to the usual clinical utilization of the TAT. In typical clinical assessment practice, the TAT is administered in order to confirm hypotheses about maladjustment and personality pathology which the clinician has inferred from his knowledge of an individual's life history and from the individual's responses to other instruments, both objective and projective. In that type of use, standard scoring procedures are of little interest, and protocols are usually recorded by the clinician himself. Each clinician may use his own idiosyncratic set of notes and symbols, and his diagnosis or decision is largely a matter of subjective interpretation.

With regard to the content of the TAT scales, the approach followed in this study was similar to that developed in the study of the children's TAT stories. The research was designed to explore various areas of psychological development, cognitive as well as emotional, which the TAT protocols might illuminate. The cognitive-verbal scales identified in the current study were similar to those in the study of children's TAT stories, but they did not reflect developing ability to the same degree as the younger age group. One important aspect of the extension of the study to ages beyond 11 years was the finding that development of language as assessed by the TAT scales is essentially completed by early adolescence. Also, the TAT affective scales were again not related to the available adjustment criteria.

In assessing the contribution of the TAT research presented here and in the previous report, the criticism might be leveled that the objective scales are merely another measure of verbal ability. In actuality, the TAT language scales represent innovative measures of oral speech based on controlled samples of spontaneously produced speech and represent an important original contribution. That the TAT scales provide a basis for scoring verbal factors from actual samples of speech should be of considerable interest to linguistic scientists as well as to psychologists.

A great many people took part in this research over a period of several years. Special recognition should be given to those who were involved in the production of this report: Steve Angle, Vicky Breed, Joan McGhee, Jane McMahon, Frances Neil, and Gwen Sorsby, for their exceptional enthusiasm and dedication in scoring the TAT protocols; Jan Fox, for her prompt and resourceful attention to the many administrative details associated with this project; and Mary Hostvedt, for the incredible skill, patience, and good nature she maintained while typing the report.

All of these persons are or were at the Institute of Behavioral Research where the study was carried out. On the staff of our division the project officer for this contract was Glenn Pinder, Research Psychologist, whose contributions to the successful completion of the work were many and substantial and merit recognition.

Arthur J. McDowell, Director
Division of Health Examination Statistics
National Center for Health Statistics

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SYMBOLS

Data not available	...
Category not applicable	...
Quantity zero	-
Quantity more than 0 but less than 0.05	0.0
Figure does not meet standards of reliability or precision	*

LANGUAGE AND ADJUSTMENT SCALES
FOR THE THEMATIC APPERCEPTION TEST
FOR YOUTHS 12-17 YEARS

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OBJECTIVES AND BACKGROUND

This study represents an extension of previous research involving the development of scales for the five-card, orally administered and tape-recorded version of the Thematic Apperception Test (TAT) used in both Cycles II and III of the Health Examination Survey (HES) by the National Center for Health Statistics (NCHS). This report, developed from TAT protocols from Cycle III of the HES conducted in 1966-70, documents scale development and presents national norms for these scales based on a national probability sample of 1,398 youths in the age range 12-17 years. A previous NCHS report,[1] developed from TAT protocols from Cycle II of the HES, presented scales and norms based on a national probability sample of children in the 6-11 year age range.

Health Examination Survey

The background of the HES is provided in an NCHS report[2] that describes the developments leading to the enactment of the National Health Survey and the policies, program, and operations of the survey.

Procedures used in the Cycle III survey, which provided data for the present report, were similar to those adopted for use in the Cycle II survey. The sample design for the survey was a probability sample of persons in geographically defined segments of the U.S. population. Of those youths selected, 6,768 were examined at 40 locations over a 4-year period. Examination included measures of visual and auditory acuity, skeletal and dental development, metabolic functioning, and psychological development. All sample youths were tested individually in specially designed vans, by qualified professional examiners. A previously published report[3] presents a summary of the plan and operation of the Cycle III survey.

Psychological Test Battery

The Cycle III test battery included all of the tests used with the sample of younger children in the Cycle II survey. These were the Vocabulary and Block Design subtests of the Wechsler Intelligence Scale for Children (WISC), the Reading and Arithmetic subtests of the Wide Range Achievement Test (WRAT), and a modified version of the Goodenough-Harris Drawing Test, as well as the TAT. A reading and writing literacy test, not employed in Cycle II, was added to the Cycle III battery.

Whereas the other tests were chosen to measure intellectual-cognitive functioning, the TAT was chosen to measure both language development and personality. Sells[4] pointed out, in particular to the Cycle II age range, that neither the TAT nor any other personality test could be recommended for survey use without criticism. The TAT was included in the survey battery because of its widespread acceptance as an indi-

vidually administered test in general school and clinic use. It was retained in Cycle III along with the other Cycle II tests in order to provide national norms over the wide age range of the two surveys.

The cards included in the specially adapted version of the TAT were: card 1 (boy contemplating violin on table), card 2 (girl with books beside farm family scene), card 5 (woman at doorway looking into room), card 8 BM (boy with "operation scene" in background), and card 16 (blank card). The cards were individually presented to each child, who was asked to imagine and relate a story. Responses were obtained orally, tape recorded, and later transcribed. All cards were shown to both boys and girls, even though card 8 BM is traditionally not shown to girls.

The planners of the survey believed that psychometrically acceptable scales for the TAT could be developed with the data available from the survey, and therefore chose the development of a technically sound instrument as opposed to using already published self-report inventories. While the TAT was initially included in the test battery to measure affective functioning and personality, scoring manuals were prepared to measure developmental aspects of oral language as well. As explained in the Cycle II report: "This recommendation by the principal investigator was accepted by the NCHS staff on the grounds that since language development data were available, they should be examined, and that such examination was congruent with one goal of the survey—the investigation of the prevalence of pathology in psychological development of American children. . . Within such a frame of reference, language development scales could be considered at least as relevant as personality-emotionality measures, and their inclusion in the research in addition to the thematic and structural indicators of emotionality was eminently appropriate."

Review of Previous Studies

The first of two previous studies dealt with the development of scoring manuals, criterion measures, and TAT scales, as well as with the initial validation studies.[5] In the second study a national probability sample was employed for estimation of national norms on the TAT scales. The final report of Study II[1] presented the results of the earlier research, including developmental data on criterion and TAT measures, and the national norms for the TAT scales developed in that research.

Study I involved a parametric analysis of the requisite components preparatory to analysis of the national probability sample. A number of decisions regarding the procedures to be used with this sample were based on an initial exploration of a wide variety of variables. These were categorized by form (structural variables) and by content (thematic variables), and a scoring manual was developed for each of these classes. Among the major problems resolved at this stage were the definition of story boundaries in the scoring procedure, the definition of card rejection and adoption of procedures to avoid bias in scoring procedures as a result of card rejection, and estimation of the reliability of the various scoring categories. Finally, a preliminary study, based on the methods developed, was made using protocols of approximately 1,000 subjects. This initial "test of the system" involved definition of TAT thematic and cognitive scales, development of available criterion measures, and preliminary TAT scale validation.

A review of Study II is presented below to provide salient background information related to the design and procedures employed in the present report. This second study involved a further analysis of the TAT, using a representative subsample of 1,200 subjects from the national probability sample of children ages 6-11 tested in Cycle II of the HES.

Cycle II criterion measures.—Both the limitation of testing time and the "state of the art" precluded the inclusion in the HES battery of additional tests or questionnaire measures of personality which could have served the purpose of criterion measures for validation of the TAT scales that were later developed in this research. Other information collected in the HES, however, offered promise of serving the purpose of criterion data. These data were a number of highly relevant measures of functioning, such as psychological measures, reports from parents, teachers, and school officials dealing with health,

social adjustment, scholastic performance, and other measures of general life adjustment as they pertained to subjects in the sample.

A principal components analysis was performed on a correlation matrix of 64 variables derived from HES source materials and psychological measures, followed by a varimax rotation to simple structure. A solution involving five criterion factors appeared to be the most applicable solution, leading to one intellectual scale and four scales formulated from questionnaire items concerning personality and health.

Criterion factor I: School adjustment
Five items were the chief defining variables for this factor. They were grade repeated, special or remedial class attended, attentiveness to class work, rated intellectual ability, and rated academic performance.

Criterion factor II: Poor health
Eight marker items were salient in defining this second factor. These eight items from the Medical History form as reported by the child's mother were presently healthy (yes or no), present health (very good or good, fair or poor), history of measles, serious accident or injury, hay fever, other allergies, kidney trouble, and speech defects.

Criterion factor III: Intellectual development
The third criterion factor was defined by those variables measured with other psychological instruments along with the age of the respondent as a variable. The salient items in addition to age were the WISC Vocabulary raw score, the WRAT Arithmetic score, the WRAT Reading score, the WISC Block Design raw score, and the Goodenough-Harris Drawing Test score.

Criterion factor IV: Social adjustment
The six items defining the social adjustment factor were based on ratings reported by the child's mother. These items included interchild relations, new friends, tension level, temper, trauma, and range of food tastes.

Criterion factor V: Emotional disturbance
This last factor was defined by the following items: aggression, overall adjustment, emotionally disturbed, and motor activity.

Development of Cycle II TAT scales.—The analyses of the TAT data followed a methodology similar to that employed with the criterion data. Initially, 87 items derived by means of the Structural and Thematic Scoring Manuals were included in the preliminary correlation matrix and were analyzed by the principal components method. Examination of the intercorrelation matrix and the varimax rotated structure led to the selection of 31 items defining the principal dimensions. The other 56 items were eliminated because they were: (1) redundant items that measured similar aspects of a unidimensional response dimension, (2) items that did not load on any of the principal factors or that had low to zero correlations with the remaining items, or (3) items that were statistically interdependent. The 31 defining variables retained were reanalyzed by principal components and rotated, again using the varimax rotation. The following TAT factors were identified:

TAT factor I: Verbal productivity
The defining variables were corrections, future reference, past reference, pauses, adverbs, and verbatim repetitions.

TAT factor II: Dysphoric mood
The second factor was defined by three marker items: death, murder-killing, and unhappy outcome.

TAT factor III: Conceptual maturity
This factor was denoted "conceptual maturity" as an abstraction drawn from the content areas of the defining variables. Note that conceptual maturity deals with one aspect of story complexity. The defining variables were present reference, rejection, level of interpretation, and situation complexity.

TAT factor IV: Narrative fluency
Grouped upon the narrative fluency factor were a number of variables, chiefly associated with employment of techniques culturally determined as normative for a "proper" story. These variables included outcome, happy outcome, causally connected statements, expression of feeling, the character

attribute happy-glad, goal behavior, and the character attribute kind-loving.

TAT factor V: Emotionality
This factor was defined primarily by thematic items as was the case with factor II, dysphoric mood. The thematic items used to define the composite for this factor included the character attribute mean-rejecting, hostile antagonism, aggression, bizarre theme, egocentrism, and morbid mood quality.

TAT factor VI: Verbal fluency
Items defining this last factor included common nouns, single verbs, pronouns, possessive adjectives, and dialogue. These variables (with the exception of dialogue) also tended to load on factor I, verbal productivity.

Overview of validation procedures.—In order to make comparisons between TAT factors and criterion data, correlation coefficients were computed between orthogonalized TAT factor scores and criterion composite scores.

(1) The two TAT factors defined by thematic items, factors II (dysphoric mood) and V (emotionality), showed negligible relationships with the criterion data.

(2) Two of the TAT structural factors, factors III (conceptual maturity) and VI (verbal fluency), displayed modest correlations with the intellectual development criterion factor (III), $r = .15$ and .10, respectively, and with age, $r = .14$ and .09.

(3) TAT factors I (verbal productivity) and IV (narrative fluency) showed more substantial relationships with criterion data. The correlation coefficients for factors I and IV, respectively, were .12 and .22 with the school adjustment criterion scale; .33 and .45 with the intellectual development criterion scale; .19 and .38 with age; and .37 and -.06 with race.

Age-sex norms.—Tables of norms were presented in the final report of Study II by Kleman, Brown, and Sells[1] for the six sets of composites derived from the TAT factors. Conversion tables were provided for salient variables, enabling the transformation of item raw scores to standard score equivalents. Composite scores, to which the norm tables refer, were derived by summing the standard score equivalents for raw scores on the variables defining each of the six TAT composites. Percentile equivalents for the TAT composite scores were presented separately for boys and girls in the given age groups.

Summary of Cycle II TAT studies.—The initial work[5] was exploratory in nature and centered around the following goals: (1) the development of standardized procedures and scoring categories for the TAT; (2) the identification of a wide range of variables that could be measured by the TAT; (3) the construction of criterion measures of psychological development and adjustment from information available in the Cycle II survey; and (4) an initial validation of the TAT scales identified in this initial study. The research was carried out with a subsample of subjects from Cycle II of the HES chosen mainly for completeness of data and quality of protocols available. The decisions made with regard to scoring procedures and process control, the construction and validation of initial TAT scales, and the development of provisional norms laid the necessary groundwork and provided methodological guidelines for the second study.

The final study of the Cycle II data was focused on two specific objectives: (1) to verify the measures reported in the initial study with a larger sample than that employed in the earlier work; and (2) to estimate scores on developed measures of language characteristics and adjustment for a carefully selected national probability subsample of children ages 6-11 years chosen from the total Cycle II HES sample.

Responses to the five-card, orally administered and tape-recorded version of the TAT were scored according to the manuals developed in the first study and were factor analyzed to identify the dimensional structure of the orally produced stories. Four cognitive-verbal scales and two emotional mood-expressive scales were identified. At the same time, other information available from the records of the survey was employed to develop criterion measures of intellectual development and adjustment. A factor analysis of health, academic achievement, intellectual ability, and social adjustment items produced one criterion factor reflecting intellectual development and four factors involving aspects of health history and home and school ad-

justment. The validity of the six TAT scales was examined in relation to these five criterion scales, taking into account age, sex, and race. Finally, national norms for the TAT measures were constructed using a national probability subsample of children from the 1,910 subjects employed in the validation research and were presented in the final report of Study II.[1]

PLAN OF THE CYCLE III TAT STUDY

The present study was based on a subsample of youths ages 12-17 years examined in Cycle III of the HES. The research was undertaken to explore the extension of the TAT scales over the teen years and the correlations of the scales developed with available criterion measures of cognitive and emotional behavior. This research may be regarded as a continuation of the earlier studies through another age range; it is new in the sense that the TAT scales and criterion measures employed in the Cycle III analysis were developed independently, although they did employ scoring manuals prepared in the earlier work. While the results of the present study are in many ways comparable with those of the Cycle II research, there are also some interesting contrasts, especially with regard to language development during the teen years.

As in the previous studies, the Cycle III research encompassed several stages of analysis. The major elements of the present investigation involved:

(1) Scoring of responses made to the five-card, orally administered and tape-recorded version of the TAT; TAT protocols were scored according to a manual revised for Cycle III.

(2) Selection of criterion data to be employed in the validation analysis of the TAT scales.

(3) Correlational and factor analyses of the criterion data and formation of criterion measures (composites).

(4) Correlational and factor analyses of TAT responses and construction of TAT scales (composites).

(5) Validation of the TAT scales and of orthogonal TAT factors with the criterion composites and with age, sex, and race.

(6) Development of norms for the TAT scales.

Description of the Cycle III Subsample

A national probability subsample, representing a cross section of youths ages 12-17, was selected for the TAT research by NCHS. Initially, 1,440 subjects, or slightly over one-fifth of the 6,768 survey participants, were chosen. Three subjects were withdrawn because of incomplete criterion data, and as a result the subsample was reduced to 1,437. The age, sex, and racial composition of this subsample is presented in table 1.[a] Approximately 55 percent of the subjects were female and approximately 14 percent were black.

Following the selection of the subsample, 39 subjects were found to have incomplete or unusable TAT data. Data control notes, prepared by the survey psychological examiners and by typists who transcribed the tape-recorded testing sessions, provided the following explanations of the missing data:

Inadequate testing time allowed (TAT not administered)	8 subjects
Lost (tape recorder not turned on, story omitted for one or more cards, etc.)	18 subjects
Other examiner error	3 subjects
Non-English speaking	2 subjects
Masking noise on tape or volume too faint to be audible	8 subjects

The age-sex-race breakdown of the 39 subjects with missing TAT data is presented in table 2. As it was decided not to replace these subjects, the final TAT subsample consisted of 1,398 youths. Table 3 presents the distribution of the final subsample which was retained for the TAT, criterion, and validation analyses.

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[a]Tables 1-22 are supplementary tables that appear in a separate section beginning on page 33.

Revision of Scoring Manual

Prior to the scoring of the Cycle III protocols, the Structural and Thematic Manuals developed for Cycle II[1] were reviewed to determine their applicability to the Cycle III responses. It was decided to eliminate a number of variables which were not included in the subset of items that had been used to define factors in the final Cycle II analysis. This reduction of items eliminated the few instances in the previous Cycle II research in which the same variable (for example, status of outcome) had been scored by both the Thematic and Structural Manuals. The remaining structural and thematic variables were combined into one manual for convenience in scoring. This revised manual contains the 31 variables that defined the TAT factors in the Cycle II analysis, as well as seven additional variables from the original manuals that appeared to be potentially related to the obtained factors, two items coded as possible resource information for any further analyses beyond the present study, and one new structural item considered relevant to the level of responses obtained in Cycle III. The revised scoring manual, consisting of 41 variables, is presented in appendix I.

Scoring Procedure

Six advanced undergraduate students were selected to serve as scorers for the Cycle III TAT data. The decision to employ undergraduates was based upon observation that these students, with proper training and supervision, achieve extremely high levels of accuracy and maintain exceptional enthusiasm in projects where personal decisionmaking is a large component of the work task.

For several weeks prior to the actual beginning of scoring, the scorers were trained in intensive practice sessions followed by discussion sessions on the interpretation of responses according to the manual. Actual scoring of protocols began in mid-January 1971 and continued until completion of the 1,398 sets of protocols in late May of the same year. Midway through the scoring process, a week was devoted to a review of scoring procedures and a check for scorer agreement and reliability.

As a quality control measure, the project director would occasionally assign a protocol to be scored by several of the scorers or would ask a student to rescore a set that he had previously completed. In addition, the project director each week rescored several protocols previously completed by the scorers to insure the maintenance of consistency and accuracy. Finally, the project director served as arbiter whenever ambiguity existed in applying the scoring rules to a particular response.

Card rejection in response to projective testing has been hypothesized as an indication of behavior pathology. The process is thought to involve (1) subconscious blocking of a response caused by anxiety elicited by the stimulus and the arousal of ego defense mechanisms or (2) conscious refusal to respond because of hostile attitudes or fears regarding the consequences of responding. A recent study by Orloff[6] employing a subsample of 996 children from the Cycle II national probability sample underscores the significance of card rejection as an important variable for analysis in studies of linguistic development and cognitive ability. Orloff entered 19 personality, social adjustment, and cognitive variables, including card rejection as the criterion variable, into a criterion factor analysis[7] and isolated five factors on which the criterion "card rejection" had loadings. Card rejection was interpreted as resulting from a general intellectual deficit, an inability to respond to a pictorial stimulus, and a lack of creativity. The negligible loading of card rejection on the maladjustment factor stands in contrast to theories which link this variable to emotional disturbance.

The determination of a card rejection in the present study was based on the same criterion as in the Cycle II analysis; that is, a response to any of the five TAT stimulus cards that failed to produce a scorable story was defined as a rejection. Table 4 presents the distribution of rejections for each of the five cards by the Cycle III subsample. The number of rejections for each of the cards made by each of the four sex-race groups were compared in an analysis of differences between independent proportions.[8] The results, shown in table 5, indicate no significant differences in card rejection in Cycle III that could be attributed to race or sex variations. The

absence of significant differences in this sample is in contrast to the differences obtained in the younger Cycle II sample; in the previous study it was found that more black girls than black boys rejected cards 5 and 8 BM, and that black children more often failed to produce a scorable response to card 16 (the blank TAT card) than did white children.[1]

Selection of Criterion Data

NCHS provided information for each subject in the TAT subsample on a variety of measures obtained in the Cycle III HES. These measures included four survey questionnaires as well as psychometric test scores and control records containing demographic information about the subjects and their families. An earlier NCHS report[3] describes the methods and shows the forms used for collecting these data.

Health Examination Survey questionnaires.— The questionnaires used during the Cycle III survey were concerned with specific areas of life history, health practices, and adjustment in home and school situations. An attempt was made to select items from these forms which had also been used in the previous Cycle II validation study. However, since two questionnaires for youths were used for the first time in Cycle III and the questionnaires for parents and the school were revised, use of identical criterion items was not possible in most cases. Information from the following survey records was examined for use as criterion data:

(1) *PHS 4733-4: Medical History of Youth—Parent's Questionnaire.* This form elicited information such as prenatal, perinatal, and postnatal health problems; hospitalization and injury data; specific organ dysfunctions, including those of the eyes and ears; impairment of musculature; early and middle childhood socialization data; and a checklist for rating the importance of certain qualities and characteristics of the child. The medical history was completed during interviews with the subjects' parents or guardians. Of the 86 items initially chosen from this form for preliminary analysis, eight were identical to items used in the final Cycle II analysis.

(2) *PHS 4733-5: Supplemental Information From School.* The school form was completed by school officials and provided information regarding grade placement; absenteeism; disciplinary problems; grades skipped or repeated; and health, academic, or adjustment problems that required special resources or facilities. The teachers' evaluations of behavior, ability, and performance provided information as to each youth's actual level of performance and achievement and thus supplemented the psychometric measures discussed later. Seven of the 23 items selected from this questionnaire were comparable to variables used in the previous study's criterion analysis.

(3) *PHS 4733-6: Health Habits and History—Youth's Questionnaire.* This form was left at the home to be completed by the youth and contained questions that the youth would be better able to answer than the parent would, such as when eyeglasses are worn and the frequency of bad dreams or nightmares. Several items on this form overlap questions on the medical history completed by the parent and offered the opportunity to compare responses of parent and child. Among these were items dealing with health background, eating habits, visits to doctor and dentist, and opinions concerning health and physical growth. This instrument was used only in the Cycle III survey, and the 49 items chosen as potential criterion variables do not duplicate any employed in the Cycle II criterion analysis.

(4) *PHS 4733-7: Health Behavior—Youth's Questionnaire.* Many of the questions on this form paralleled those contained in the medical history completed by the parent, including the importance of several qualities or characteristics of the child, decisionmaking practices in the home, and goals for future education.

Other items dealt with smoking behavior, dating, and experiences with law enforcement agents. Each youth completed the Health Behavior questionnaire while at the examination center; 25 items were chosen for preliminary analysis of criterion data. This questionnaire was not used in Cycle II.

Psychometric test scores.—The second major category of available data for criterion analysis included test scores from a number of standard psychological instruments including:

(1) The Vocabulary subtest from the Wechsler Intelligence Scale for Children (WISC).

(2) The Block Design subtest from the WISC.

(3) The Reading subtest from the 1965 revision of the Wide Range Achievement Test (WRAT).

(4) The WRAT Arithmetic subtest.

(5) A modified Goodenough-Harris Drawing Test including
   (a) a person drawing and
   (b) a self drawing

The raw scores on the first four subtests listed and on the two drawings were used as criterion variables. In addition to these commercially available instruments, the test battery included a brief reading and writing test of literacy, developed specifically for the HES. The reading test scores, writing test scores, and examiners' ratings of each subject's literacy were also used as criterion variables. In all, nine test scores were included as criterion variables in the present study.

Other criterion data.— The final set of criterion items was taken from control records. These included family income level, region of residence, and size of population of the city or town in which the youth resided. The control records were checked as a final verification of each subject's age, sex, and race, although these three items were not included as criterion variables. The next section describes the procedures and results of the criterion analysis.

ANALYSIS OF THE CRITERION DATA

Analyses were performed at three levels using the criterion data described in the preceding section. At the first level, five sets of correlations were calculated among items contained in each of the four HES forms, the set of demographic data, and the psychological test scores. Items displaying essentially zero correlation with other items were discarded before proceeding to the next level of analysis.

At the second level of analysis, each of the five correlation matrices thus generated was subjected to a principal components analysis followed by varimax rotation. The 18 separate factors (components) obtained in these respective analyses are referred to below as first-order factors. At the third level of analysis, correlations were computed among the first-order factors, and second-order factors were derived, again using principal components analysis and varimax rotation. The terms "first-order" and "second-order" are employed primarily for convenience and should not be confused with the use of these terms as applied to nonorthogonal factor analyses.

The results of these analyses are presented below, followed by a review of the correlations among the first-order factors and the resulting second-order factors.

Medical History of Youth—Parent's Questionnaire

Correlations among 45 items retained from the parent-completed medical history form are presented in table 6; the varimax-rotated solution appears in table 7. Defining variables, their means and standard deviations, factor loadings, as well as item coding, are provided for each of the four first-order rotated factors in table A.

Factor A-I: Parental values.— Appreciable loadings on factor A-I (table A) were found for all the items from the checklist of qualities or characteristics which the parents rated in terms of importance. The general interpretation given to the pattern of loadings suggests a unidimensional response set, indicating that the degree

Table A. Variables used to define criterion factors A-I through A-IV: scoring, mean, standard deviation (SD), and factor loading

Criterion factor and variable	Question number[1]	Scoring	Mean	SD	Factor loading
Factor A-I: Parental values					
Importance of quality or characteristic of youth:	60	4—extremely important 3—important 2—slightly important 1—unimportant			
To face life's problems calmly			3.44	.55	.74
To be considerate of others			3.56	.53	.73
To be ambitious			3.35	.59	.72
To have self-control			3.57	.54	.72
To obey parents			3.59	.53	.72
To know how to keep in good health			3.60	.53	.71
To be happy			3.54	.55	.71
To be dependable			3.63	.52	.71
To be neat and clean			3.60	.53	.69
To obey the law			3.74	.47	.66
To be able to defend self			3.22	.60	.59
Factor A-II: Good health history for youth					
Exercise now restricted	36	2—no 1—yes	1.96	.20	.80
Exercise restricted on doctor's advice	36b	3—not applicable 2—yes 1—no	2.94	.27	.76
Exercise ever restricted	37	2—no 1—yes	1.89	.31	.60
Serious health problems since age 1	9	2—no 1—yes	1.87	.33	.51
Use of legs restricted	34	2—no 1—yes	1.99	.12	.48
Limp, other trouble walking	33	2—no 1—yes	1.98	.14	.43
Health problems of youth worrying parents	10	2—no 1—yes	1.85	.36	.41
Asthma	18f	2—no 1—yes	1.93	.26	.38
Medicine used regularly	12	2—no 1—yes	1.94	.24	.37
Other diseases such as polio, rheumatic fever, diabetes, epilepsy, TB, chorea, diptheria, cerebral palsy, or meningitis	19	2—none of these 1—one or more	1.97	.17	.35
Present health	11	5—excellent 4—very good 3—good 2—fair 1—poor	3.96	.86	.34
Difficulty before age 1	8	2—no 1—yes	1.88	.33	.31
Factor A-III: Parental involvement in youth's good welfare					
Dentist last seen for checkup	67	4—in last year 3—1 to 2 years ago 2—over 2 years ago 1—never	3.28	1.02	.70
Dentist last seen for treatment	68	do.	3.11	1.10	.64

[1]These questions from the Medical History of Youth—Parent's Questionnaire (from PHS 4733-4) are shown in appendix II.

Table A. Variables used to define criterion factors A-I through A-IV: scoring, mean, standard deviation (SD), and factor loading—Con.

Criterion factor and variable	Question number[1]	Scoring	Mean	SD	Factor loading
Factor A-III: Parental involvement in youth's good welfare—Con.					
What parent thinks will happen on youth's schooling	59	5—further training after college 4—finish college 3—some college or training after high school 2—finish high school 1—quit school as soon as possible	3.08	1.08	.57
Parent's desires on youth's schooling	58	do.	3.42	1.05	.56
Doctor last seen for checkup	64	4—in last year 3—1 to 2 years ago 2—over 2 years ago 1—never	3.19	.96	.53
Born in hospital	5	2—yes 1—no	1.88	.33	.48
Doctor last seen for treatment	65	4—in last year 3—1 to 2 years ago 2—over 2 years ago 1—never	3.03	1.03	.48
Any operations	16	2—none 1—one or more	1.62	.49	-.45
Attended kindergarten	44	2—yes 1—no	1.67	.47	.43
Hospitalized overnight or longer	17	2—no 1—yes	1.51	.50	-.41
Overnight visits with friends	42	3—quite a few times 2—only once or twice 1—never	2.31	.78	.39
Teeth straightened or bands put on teeth	38	2—no 1—yes	1.91	.29	-.39
Friends known to parents	48	3—most of them 2—half or less 1—almost none	2.70	.57	.36
Factor A-IV: Youth's good adjustment history					
Ever seen psychiatrist or psychologist	52	2—no 1—yes	1.95	.22	.57
Calm or nervous	50	3—not nervous at all 2—somewhat nervous 1—very nervous	2.45	.58	.54
Rate of mental development	41	2—about right rate 1—too fast or too slow	1.96	.19	.53
Trouble to raise	49	4—none 3—just a little 2—some 1—a lot	3.45	.75	.53
Ever been to mental hospital or guidance clinic	51	2—no 1—yes	1.98	.15	.51
How often exaggerate when ill	62	4—never 3—almost never 2—not very often 1—pretty often	3.13	.87	.42
Ease in making friends	47	3—easily 2—has a little trouble 1—has a lot of trouble	2.80	.43	.37
First reaction to school	46	4—quite happy 3—a little upset 2—quite upset 1—so upset, got sick	3.70	.55	.34
Amount eats	53	2—right amount 1—too little or too much	1.80	.40	.34

[1]These questions from the Medical History of Youth—Parent's Questionnaire (form PHS 4733-4) are shown in appendix II.

of importance assigned to all items was similar from item to item for a given parent.

Factor A-II: Good health history for youth.—Twelve variables achieved loadings greater than .30 on factor A-II, as reported in table A. The three highest loading items deal with restriction of exercise; of the next four highest loading variables, two are concerned with mobility and two with general health problems. The remaining items concern occurrence of specific diseases, particularly asthma, the use of medicine, present health status, and difficulties during the first year of life. It seems reasonable to assume that the items referring to restriction of exercise serve a major role in appraising health history.

Factor A-III: Parental involvement in youth's good welfare.—The group of items forming this third factor (table A) appears to reflect the efforts of parents in seeking positive adjustment for their children in the social, academic, and health-related areas. Four of the items measure recency of services by medical and dental professionals, three variables deal with academic education, two with peer socialization, and three are hospital-specific items. It should be noted that the negative factor loadings associated with three variables—operations, hospitalization overnight or longer, and teeth straightening—occur as the result of assigning the higher score to a negative response for these items. Therefore, these variables are interpreted as indicating the same direction as the other variables defining the factor.

Factor A-IV: Youth's good adjustment history.—The items from the medical history completed by parents that comprise the fourth factor (table A) are interpreted as indicators of mental health status. Such indicators involve seeing a mental health professional or attending a guidance clinic, difficulty in upbringing, and degree of emotionality. Less strongly loading items reflecting adjustment with peers and school also contribute to the interpretation of this factor.

Health Habits and History—Youth's Questionnaire

Table 8 shows the correlations among 23 criterion variables retained from the subject-completed medical history form. The varimax-rotated factor loadings derived from table 8 are presented in table 9. Detailed information concerning variables defining each of the four first-order factors obtained from this questionnaire is shown in table B.

Factor B-I: Keeping in good health.—The six items considered definitive for factor B-I are reported in table B. Each of the four most highly loading variables deals with recency of visits to medical and dental personnel; the other two items are "Do you sleep alone in your own room?" and "Have you ever stayed in a hospital overnight or longer?" Because the high-loading variables for this factor are similar to those for factor A-III (table A), a relatively high correlation between the two factors was anticipated and is discussed later on page 20.

Factor B-II: Self-perception of weight and eating habits.— Four variables dealing with the youth's perceived body image define factor B-II, as shown in table B. Apparently those adolescents who perceive themselves as overweight or underweight also perceive themselves as being fatter or thinner, respectively, than other persons and tend to want to be thinner or heavier, respectively, than they are at present.

Factor B-III: Absence of exercise restriction.—As shown in table B, this factor is defined chiefly by items dealing with restriction of exercise. A fourth, weakly contributory item concerns the regular use of medicine. Given the similar subject content of the three most definitive variables, it is not surprising that they define a common factor. On the basis of the similarity among the highest loading items on this factor and on factor A-II (reported in table A), a relatively high correlation between the two was expected and is shown in table 16.

Factor B-IV: Diversion from health concerns.—This factor is interesting for at least two reasons: (1) as can be seen in table B, an intriguing potpourri of variables appears to load on the factor and (2) the underlying bipolar dimension is somewhat elusive conceptually. Two items concern hours spent in reading; one asks the number of hours spent listening to the radio; other items concern recently experienced backaches or earaches, present health condition, acne as a source of worry, difficulty in falling asleep, and problems that the youth would like to talk

Table B. Variables used to define criterion factors B-I through B-IV: scoring, mean, standard deviation (SD), and factor loading

Criterion factor and variable	Question number[1]	Scoring	Mean	SD	Factor loading
Factor B-I: Keeping in good health					
Dentist last seen for checkup	41	4—in last year 3—1 to 2 years ago 2—over 2 years ago 1—never	3.11	1.10	.83
Dentist last seen for treatment	42	do.	2.97	1.13	.78
Doctor last seen for checkup	39	do.	3.01	1.05	.60
Doctor last seen for treatment	40	do.	2.87	1.12	.52
Sleep alone in own room	29	2—yes 1—no	1.46	.50	.37
Hospitalized overnight or longer	10	3—no 2—yes, once 1—yes, more than once	2.34	.74	.33
Factor B-II: Self-perception of weight and eating habits					
Estimate of weight	24	2—about right 1—underweight or overweight	1.63	.48	.85
Weight comparison	25	2—about same as most 1—thinner or heavier than most	1.64	.48	.78
Weight preference	26	2—about same weight 1—thinner or heavier	1.47	.50	.76
Amount eats	38	2—about right amount 1—too little or too much	1.74	.44	.57
Factor B-III: Absence of exercise restriction					
Exercise ever restricted on doctor's advice	23	3—not applicable 2—yes 1—no	2.85	.39	.89
Exercise ever restricted	23	2—no 1—yes	1.87	.34	.88
Exercise now forbidden	23	2—no; not applicable 1—yes	1.97	.17	.68
Medicine used regularly	6	2—no 1—yes	1.93	.26	.33

[1]These questions from Health Habits and History—Youth's Questionnaire (form PHS 4733-6) are shown in appendix II.

Table B. Variables used to define criterion factors B-I through B-IV: scoring, mean, standard deviation (SD), and factor loading—Con.

Criterion factor and variable	Question number[1]	Scoring	Mean	SD	Factor loading
Factor B-IV: Diversion from health concerns					
Hours per day reading newspapers, magazines, comics	43	6—3 hr. or more 5—2 hr. to less than 3 4—1 hr. to less than 2 3—one-half hr. to less than 1 2—less than one-half hr. 1—none	2.89	1.20	-.51
Backaches in last year or two	28	3—no 2—yes, occasionally 1—yes, quite often	2.73	.50	.46
Problems to discuss with doctor	5	2—no 1—yes	1.89	.31	.46
Hours per day reading books	43	6—3 hr. or more 5—2 hr. to less than 3 4—1 hr. to less than 2 3—one-half hr. to less than 1 2—less than one-half hr. 1—none	3.38	1.71	-.46
Trouble getting to sleep	30	3—never 2—only from time to time 1—very often	2.42	.60	.44
Bother from acne	33d	4—not applicable 3—very little to not at all 2—some but not too much 1—quite a lot	3.20	.94	.41
Earaches in past year	16	3—not at all 2—not very often 1—quite often	2.79	.45	.38
Present health	4	5—excellent 4—very good 3—good 2—fair 1—poor	3.82	.87	.32
Hours per day listening to radio	43	6—3 hr. or more 5—2 hr. to less than 3 4—1 hr. to less than 2 3—one-half hr. to less than 1 2—less than one-half hr. 1—none	3.96	2.03	-.29

[1]These questions from Health Habits and History—Youth's Questionnaire (form PHS 4733-6) are shown in appendix II.

over with a doctor. The loadings indicate that as the number of hours spent in listening to radio and in reading decreased, the reported incidence of backaches, problems to discuss with a doctor, trouble sleeping, and so forth, also decreased. The more time that the subjects reported as devoted to reading and listening to radio, the more problems they reported. Several interpretations of this factor seem plausible, such as introversion, hypochondria, or poor social adjustment. Keeping in mind the pattern of loadings, a causal sequency may be hypothesized: as the health-related concerns such as difficulty in sleeping or worry over acne increase, subjects seek diversions from these problems. Reading appears to be the major mode of escape chosen. It is interesting to note that the item "Hours per day watching television" did not load appreciably here. A possible reason is that television viewing is so widespread as to show no differentiation in this sample.

Supplemental Information From School

The correlation matrix among 15 items retained from the document completed by school officials (table 10) yielded three factors. Table 11 shows the rotated factor loadings of these items. The defining variables for each of the three first-order factors, their means, standard deviations, factor loadings, and scoring are reported in table C.

Factor C-I: Grade placement.—The variables loading on this factor suggest weakly a common dimension on which repetition of grades and the occurrence of disciplinary action are related. Inspection of table C reveals that approximately three-fourths of the variance in this factor is attributable to the two repetition-of-grade items, and that not quite 10 percent is attributable to the items of present grade placement and disciplinary action.

Factor C-II: School success and adjustment.—This factor is easily labeled in terms of the high-loading variables defining it, as shown in table C. Subjects high on this scale were rated as well adjusted, having few absences (due principally to the student's illness), high in academic achievement and in intellectual ability, popular with peers, and not requiring the resources or facilities appropriate for emotionally disturbed students.

Factor C-III: Special physical or academic resources.—The four defining special resource or special facility needs are interpreted to reflect a common dimension of learning difficulty attributable to some physical (hearing) or cognitive (slow learner) handicap, leading to the need for remedial reading or other remedial training. Since these are positively correlated items, the checking of one item may well indicate, at least for some cases, the need for more than one special resource. Thus, for example, the slow learner may be hard of hearing and need remedial reading. From the mean scores for this factor in table C it can be seen that most subjects required none of these resources.

Health Behavior—Youth's Questionnaire

Table 12 presents correlations among the 19 items retained as criterion variables from this youth-completed document. The varimax-rotated loadings of these items on three factors are presented in table 13. Table D presents the relevant information concerning the defining variables for each of these three factors.

Factor D-I: Youth's values.—Ten of 11 values from a youth-completed rating scale (identical to that on the medical history form completed by the parent) define the first factor of the youth's health behavior document. It should be cautioned that the relative rankings of items on this factor (table D) and on the parent form (factor A-I, table A) do not constitute a valid basis for comparing the two; rather, examination of the correlation between the two factors, considered later, provides a better basis for judging the factor similarity.

Factor D-II: Social behavior.—This factor is defined by the seven variables reported in table D; these items concern cigarette smoking, involvement with police, dating, and the youth's participation in clothing selection. The factor provides some interesting information which suggests that (1) a positive relationship exists between involvement with police (delinquency) and youthful smoking and (2) a negative relationship exists between the above two items and the youth's

Table C. Variables used to define criterion factors C-I through C-III: scoring, mean, standard deviation (SD), and factor loading

Criterion factor and variable	Question number[1]	Scoring	Mean	SD	Factor loading
Factor C-I: Grade placement					
Grades repeated	4	2—no 1—yes	1.86	.34	.94
Reason grades repeated	5	4—not applicable 3—moved to more difficult school system 2—social immaturity; academic failure 1—truancy; excessive absenteeism	3.36	1.01	.94
Disciplinary action required	7	3—never 2—occasionally 1—frequently	2.77	.42	.32
Grade placement	2	13—beyond 12th grade 12—HS grad, no further education; 12th grade 11—11th grade 10—10th grade 09—9th grade 08—8th grade 07—7th grade 06—6th grade 05—5th grade 04—none to 4th grade 03—special school or class 02—dropout	8.91	2.15	.32
Factor C-II: School success and adjustment					
Adjustment	9	3—seems well adjusted 2—somewhat maladjusted 1—seriously maladjusted	2.67	.51	.77
Main reason for absences	6	5—not applicable 4—student's illness 3—illness in student's family 2—due to work 1—truancy 0—other; more than one reason checked	4.15	1.78	.65

[1]These questions from the Supplemental Information From School (form PHS 4733-5) are shown in appendix II.

Table C. Variables used to define criterion factors C-I through C-III: scoring, mean, standard deviation (SD), and factor loading—Con.

Criterion factor and variable	Question number[1]	Scoring	Mean	SD	Factor loading
Factor C-II: School success and adjustment—(Con)					
Academic achievement	11	3—upper third of class 2—middle third of class 1—lower third of class	1.99	.70	.62
Popularity with other students	12	3—above average 2—about average 1—below average	2.03	.45	.60
Intellectual ability	10	3—above average 2—average 1—below average	2.07	.64	.52
Unusual number of absences	6	2—no 1—yes	1.88	.32	.51
Resource needed—emotionally disturbed	8d	3—not applicable 2—being used 1—not available; not used	2.98	.19	.30
Factor C-III: Special physical or academic resources					
Resource needed—remedial reading	8i	3—not applicable 2—being used 1—not available; not used	2.93	.31	.68
Resource needed—remedial training in special subject	8k	do.	2.97	.20	.68
Resource needed—slow learner	8c	do.	2.93	.31	.58
Resource needed—hard of hearing	8f	do.	3.00	.05	.55

[1]These questions from the Supplemental Information From School (form PHS 4733-5) are shown in appendix II.

involvement in dating and in the decisionmaking process of choosing his clothing. The variables defining this factor appear to be important in measuring the prevalence of normal versus delinquent social development.

Factor D-III: Schooling.—This factor is defined by only two conceptually similar items (desire and expectation for future education). In effect, what the youth desires in the way of future schooling corresponds closely with his expectations of what will happen. By comparing the mean scores for these two variables as given by youths (table D) with the scores for the same two items on the parent-completed questionnaire (factor A-III, table A), it can be noted that the parents seem to have higher goals but lower expectations for their children's education than do the youths themselves.

Table D. Variables used to define criterion factors D-I through D-III: scoring, mean, standard deviation (SD), and factor loading

Criterion factor and variable	Question number[1]	Scoring	Mean	SD	Factor loading
Factor D-I: Youth's values					
Importance of quality or characteristic for young person:	12	4—extremely important 3—important 2—slightly important 1—unimportant			
To be considerate of others			3.43	.61	.67
To know how to keep in good health			3.61	.57	.66
To obey the law			3.68	.54	.64
To obey parents			3.61	.59	.63
To be neat and clean			3.54	.63	.62
To be dependable			3.53	.59	.62
To have self-control			3.55	.61	.60
To face life's problems calmly			3.38	.54	.59
To be happy			3.41	.67	.47
To be ambitious			3.21	.70	.45
Factor D-II: Social behavior					
Number cigarettes smoked per day	9	4—don't smoke at all 3—don't smoke cigarettes 2—less than 1 pack 1—1 pack or more	3.67	.77	.72
Age began smoking regularly	8	2—never regularly 1—age given	1.86	.39	.68
Times questioned by police	6	4—never 3—once 2—twice 1—more than twice	3.74	.64	.66
Ever arrested	6b	3—not applicable 2—no 1—yes	2.79	.48	.66
Age first smoked	7	2—never tried 1—age given	1.54	.51	.62
Ever had a date	3	2—yes 1—no	1.47	.50	-.58
Who makes most decisions on choosing clothes	4a	3—you alone 2—father and you; mother and you; parents and you; nobody 1—father; mother; parents; other person(s)	2.15	.72	-.39
Factor D-III: Schooling					
Desires about schooling	1	5—further training after college 4—finish college 3—some college or training after high school 2—finish high school 1—quit school as soon as possible 0—not in school	3.36	1.07	.88
What believe will happen about schooling	2	do.	3.22	1.09	.86

[1]These questions from the Health Behavior—Youth's Questionnaire (form PHS 4733-7) are shown in appendix II.

Test Scores and Demographic Data

Items for the fifth and final set of criterion data, including test scores and demographic data, were correlated (table 14) and then analyzed by principal components and varimax rotation (table 15). Information for the four first-order factors resulting from these analyses is presented in table E.

Factor E-I: WISC and WRAT.—This factor is defined by five variables, as shown in table E. The first three are WRAT Reading raw score, WISC Vocabulary raw score, and WRAT Arithmetic raw score; the other two variables, WISC Block Design raw score and family income level, load slightly less highly than do the first three. The first four variables in concert customarily serve as indicators of general intellectual ability. What is interesting in this factor is the high loading of the family income variable on the factor representing the general cognitive development items. To the extent that family income is an indicator of socioeconomic status, it appears that the latter is definitely correlated with intellectual measures. These results may be useful in the controversy regarding intelligence testing of minority group members, who are overrepresented in the low income groups.

Remaining factors.—Because of the specificity of items defining the remaining factors, they are mentioned only briefly. Factor E-II, literacy (table E), is defined by the scores on the reading and writing tests designed specifically for the survey, and by the examiner's ratings of subject's literacy. Factor E-III, Goodenough-Harris Drawing Test (table E), is defined by the self-drawing and the person drawing scores from the modified Goodenough-Harris Drawing Test. Finally, factor E-IV, demographic data (table E), is defined by two items, the population of the youth's city or town and the region of the country in which the youth resides.

Relationships Among Primary Criterion Factors

The preceding analyses have dealt with information obtained from four HES data collection forms and from psychometric test scores and demographic material. The Medical History of Youth form, completed by the parent, produced four first-order factors (A-I through A-IV); the youth-completed Health Habits and History questionnaire also yielded four factors, B-I through B-IV. Information provided by school officials served as the basis for factors C-I through C-III, and the Health Behavior questionnaire completed by the youth provided factors D-I through D-III. Four other factors (E-I through E-IV) emerged in the analysis of the psychological test and demographic data. Altogether, a total of 18 factors defined by 114 variables was extracted in the five separate analyses (tables A-E). The next step involved examination of the relationships among the 18 factors.

Composite scores based on the defining variables for each of the 18 individual factors were computed for each of the 1,398 subjects. These scores were then intercorrelated, as shown in table 16, and subjected to principal components analysis followed by varimax rotation. The rotated factor loadings are presented in table 17 and summarized in table F.

Criterion composite I: Intellectual and academic level.—This composite represents a clustering of the primary composites grade placement (C-I) and special physical or academic resources (C-III) from the school-supplied information, and the psychometric test composites, E-I, E-II, and E-III, representing, respectively, WISC and WRAT scores, literacy, and the Goodenough-Harris Drawing Test.

Criterion composite II: Illness history.—Two first-order composites load highly on this second criterion factor; these are good health history for youth (A-II) and absence of exercise restriction (B-III). The only other loading of substance is .329 (table 17) for the primary composite diversion from health concerns (B-IV); this variable, while logically related to illness history, was found to be more definitive for the sixth criterion composite.

Criterion composite III: Parental care.—First-order composites derived from four source documents enter into the second-order composite parental care. These defining composites are parental involvement in youth's good welfare (A-III), keeping in good health (B-I), schooling (D-III), and demographic data (E-IV). The schooling composite was formed from two youth-com-

Table E. Variables used to define criterion factors E-I through E-IV: scoring, mean, standard deviation (SD), and factor loading

Criterion factor and variable[1]	Scoring	Mean	SD	Factor loading
Factor E-I: WISC and WRAT				
WRAT Reading raw score	actual score	48.47	13.60	.84
WISC Vocabulary raw score	actual score	41.37	11.17	.84
WRAT Arithmetic raw score	actual score	23.20	6.96	.79
WISC Block Design raw score	actual score	28.92	13.92	.67
Family income	6—$15,000 or more 5—$10,000-$14,999 4—$ 7,000-$ 9,999 3—$ 5,000-$ 6,999 2—$ 3,000-$ 4,999 1—less than $3,000	3.54	1.47	.61
Factor E-II: Literacy				
Reading test score (number right minus 1/4 number wrong	actual score	1135.69	328.79	.90
Writing test score	actual score	32.81	10.44	.82
Literacy score	3—literate 2—no score; physical handicap 1—illiterate	2.90	.44	.66
Factor E-III: Goodenough-Harris Drawing Test				
Goodenough-Harris self drawing (average score)	actual score	37.54	7.84	.92
Goodenough-Harris person drawing (average score)	actual score	37.83	7.91	.90
Factor E-IV: Demographic data				
Population of residence location	8—rural 7—2,500-9,999 6—10,000-24,999 5—25,000 or more 4—urban, less than 250,000 3—250,000-999,999 2—1-2.9 million 1—3 million or more	4.54	2.90	.79
Region of residence	4—West 3—South 2—Midwest 1—Northeast	2.47	1.10	.74

[1]Variables are derived from psychometric test scores and control records.

Table F. Summary of second-order criterion composites derived from 18 first-order criterion composites

Second-order composite	Defining first-order composites	Composite loadings	Eigenvalues	Percentage of variance accounted for	Cumulative percentage of variance
I. Intellectual and academic level-------	E-I	.69	2.24	12.46	12.46
	E-III	.67			
	C-I	.63			
	E-II	.52			
	C-III	.51			
II. Illness history-------	B-III	.83	1.65	9.16	21.62
	A-II	.82			
III. Parental care---------	A-III	.76	2.02	11.23	32.86
	B-I	.75			
	D-III	.54			
	E-IV	-.51			
IV. Maturity and school adjustment----------	D-II	.82	1.42	7.89	40.75
	C-II	.58			
V. Value orientations, parent and child-----	A-I	.77	1.27	7.05	47.80
	D-I	.65			
VI. Personal adjustment---	B-II	-.78	1.36	7.57	55.37
	A-IV	-.58			
	B-IV	-.52			

pleted items similar in content to two variables defining the parental involvement composite, and the correlation between the two composites is .37 (table 16); while the former shows a substantial loading on criterion composite IV (see below), the latter does not. There is also similarity of content between composites B-I and A-III, and, as anticipated earlier in this section, these two composites have the highest correlation (.56) of any pair among the 18 first-order composites (table 16).

Another variable loading on criterion composite III is the first-order composite E-I, WISC and WRAT scores. As mentioned previously, however, E-I is included in the first criterion composite because of its logical relationship to the other intellectual and academic variables, as well as its high loading on that composite.

Criterion composite IV: Maturity and school adjustment.—Only two first-order composites, school success and adjustment (C-II) and social behavior (D-II), comprise this fourth criterion composite. However, schooling (D-III), which defines criterion composite III, displays a substantial loading (.428) with this criterion composite (table 17). Although C-II, school success and adjustment, defines and has its highest loading on criterion composite IV, it also loads .409 on criterion composite I, intellectual and academic level.

Criterion composite V: Value orientations, parent and child.— This second-order criterion composite is defined by the first-order composites A-I, parental values, and D-I, youth's values. These defining composites represent parents' and youths' ratings of importance for the list of characteristics or qualities shown in tables A and D. Reference to table 16 reveals that the correlation between these two composites is only .19; but comparison of the intercorrelations of

each with the remaining 16 first-order composites indicates that the youth's values composite and parental values composite are more closely associated with each other than either of them are with most the remaining composites.

Criterion composite VI: Personal adjustment.—The last second-order composite is defined by three first-order composites derived from parent- and youth-completed medical history and habit documents. These three composites are self-perception of weight and eating habits (B-II), diversion from health concerns (B-IV), and youth's good adjustment history (A-IV). This criterion composite receives its label "personal adjustment" from the self-image, personal coping, and mental health interpretations given previously to the defining first-order composites.

ANALYSIS OF TAT PREDICTOR DATA

Correlations were computed among 41 TAT variables that were scored from the story protocols of the sample of 1,398 subjects. As discussed earlier (page 6) these variables included the 31 items which defined the TAT composites in the Cycle II study[1] as well as 10 items scored as possible resource information or because of their potential relationships with certain of the 31 variables. Upon examination of the resulting 41 x 41 matrix, however, it was found that the 10 additional variables failed to exhibit substantial correlations with the original set of 31 variables. Thus, it was decided to exclude these 10 items before proceeding with the analysis. The means and standard deviations of the 31 variables retained for analysis are presented in table 18.

The reduced correlation matrix was then analyzed by the method of principal components. Table 19 shows the correlations among the 31 variables, and table 20 shows the four-factor solution after varimax rotation. From inspection of tables 19 and 20, it is apparent that two of the 31 variables—pauses and egocentrism—had low correlations with the other variables and failed to display substantial loadings on any of the four factors. These two items were not considered to define any of the four TAT factors and were not included in the formation of TAT composites.

Defining Variables for Cycle III Factors

In preparation for the validation analysis, reported subsequently, each of the four factors shown in table 20 was examined and the defining variables were identified. These items were used later to calculate composite scores based on the sums of standard scores of the defining variables for each of the four factors. The identification of the defining variables also served as the basis for labeling and interpreting the four factors.

Table G shows the items for each of the four TAT factors and their respective loadings. For this table all loadings of .30 or greater are listed. For the purposes of computing composite scores, however, only those with the highest loadings were used.

TAT factor I: Verbal competence.—Eight variables were selected to define the first TAT factor, as shown in table G. They include the frequency count items (nouns, pronouns, single verbs, possessive adjectives, and adverbs) as well as the stylistic variables (verbatim repetitions, corrections, and dialogue). While the two variables causally connected statements and kind, loving also had their highest loadings on this factor, they were not used in the formation of the first TAT composite; earlier analyses (with fewer rotations) indicated that it would be more appropriate to include these two variables in the fourth TAT composite. Factor I is discussed in more detail below, following the description of the remaining factors.

TAT factor II: Conceptual maturity.—This factor appears to be the most stable of the TAT factors. Conceptual maturity has emerged unequivocally in all of the previous analyses of the Cycle II data and in all rotations of the Cycle III data. Defining variables, as presented in table G, include card rejection, situation complexity, level of interpretation, and present reference. This factor reflects the degree to which subjects are sufficiently mature to cope with the directions and requirements of the storytelling task. Additionally, it reflects qualitative variations in the structural depth of the stories. The moderate

Table G. Variables used to define the four TAT factors and their factor loadings

TAT factor and variable	Item number in scoring manual[1]	Factor loading
Factor I: Verbal competence		
Single verbs[2]	7	.89
Nouns[2]	5	.87
Pronouns[2]	6	.85
Possessive adjectives[2]	9	.78
Corrections[2]	14	.76
Verbatim repetitions[2]	13	.64
Adverbs[2]	11	.55
Dialogue[2]	15	.50
Causally connected statements	24	.44
Kind, loving (character attribute)	34	.42
Expression of feeling	27	.35
Level of interpretation	20	.32
Factor II: Conceptual maturity		
Card rejection[2]	1	-.88
Present reference[2]	18	.88
Level of interpretation[2]	20	.73
Situation complexity[2]	16	.66
Causally connected statements	24	.30
Factor III: Emotionality		
Murder, killing (character attribute)[2]	40	.75
Death (character attribute)[2]	39	.68
Aggression (character attribute)[2]	37	.62
Hostile antagonism[2]	33	.52
Unhappy outcome[2]	23	.51
Mean, rejecting (character attribute)[2]	35	.46
Morbid mood quality[2]	29	.45
Bizarre theme[2]	30	.39
Factor IV: Narrative fluency		
Outcome[2]	21	.84
Happy outcome[2]	22	.82
Future reference[2]	19	.78
Past reference[2]	17	.52
Goal-oriented behavior	41	.49
Causally connected statements[2]	24	.42
Kind, loving (character attribute)[2]	34	.41
Happy, glad (character attribute)[2]	36	.40
Expression of feeling[2]	27	.38
Situation complexity	16	.54
Level of interpretation	20	.38

[1]See appendix I for information on how the items were scored.
[2]Variable used to compute composite scores.

loading on this factor of the variable causally connected statements (used in computing TAT composite IV) lends support to this interpretation. That conceptual maturity may represent a creative as well as a technically proficient use of linguistic skills is borne out by Orloff's study,[6] which found a high positive loading for the variable level of interpretation and a negative loading for card rejection on a factor labeled "creativity."

TAT factor III: Emotionality.—Table G shows the eight variables defining this factor. These variables all exhibit to some extent an emotional connotation, predominantly negative in character. Seven of the variables—unhappy outcome; death; murder, killing; morbid mood quality; hostile antagonism; mean, rejecting; and aggression—have manifest negative overtones. The eighth variable, bizarre theme, is readily associated with stories displaying one or more of the other seven variables. This factor is the only one to emerge that was defined exclusively by thematic variables.

TAT factor IV: Narrative fluency.—The nine variables comprising this factor (table G) are outcome; happy outcome; future reference; past reference; goal behavior; causally connected statements; kind, loving; happy, glad; and expression of feeling. The title "narrative fluency" reflects the fact that two additional variables, used in the formation of the second TAT composite, also displayed substantial loadings on this factor; these were situation complexity and level of interpretation. The clustering of variables presented suggests stories well defined in their structural composition and in which positive thematic elements prevail. The interpretation given for a similarly arrayed factor emerging in the Cycle II analysis was as follows: "...this factor represents those stories, particularly those positive in outlook, in which thematic elements make sharply defined appearances within the boundaries of well-conceived and well-developed stories."[1]

Comparison of the Cycle II and Cycle III TAT Factors

Some interesting and noteworthy comparisons can be made between the four factors extracted in the present analysis and the six-factor solution obtained for the Cycle II TAT data.[1] The relationship between the two sets of factors is illustrated in figure 1. One factor, conceptual maturity, is the same in both the Cycle III and Cycle II studies; another Cycle III factor, narrative fluency, shows close similarity, containing all of the items in the corresponding Cycle II factor as well as two of the defining items from another Cycle II factor. Each of the remaining Cycle III factors essentially represents the merging of variables from two pairs of factors that were differentiated in the Cycle II analysis; see table H.

CYCLE III TAT FACTORS		CYCLE II TAT FACTORS
Verbal competence (I)	=	Verbal fluency (VI) + three variables from verbal productivity (I)
Conceptual maturity (II)	=	Conceptual maturity (III)
Emotionality (III)	=	Dysphoric mood (II) + five variables from emotionality (V)
Narrative fluency (IV)	=	Narrative fluency (IV) + two variables from verbal productivity (I)

Figure 1. Relationships between four Cycle III TAT factors and six Cycle II TAT factors.

The factors conceptual maturity and narrative fluency were identified in both the Cycle II and Cycle III analyses. Since the defining variables were identical for the conceptual maturity factor in each study, no special comparisons are needed. The defining items for the narrative fluency factors isolated in the two studies are compared in table H. Note that seven variables are common to both factors and the two highest loading variables are identical in both. Two variables used in the Cycle III narrative fluency composite, past reference and future reference, were assigned differently in the Cycle II composite; the appearance of these two variables in the present study merely strengthens the earlier expressed contention that this factor reflects a

Table H. Comparison of Cycle II and Cycle III TAT factors

Variable	Cycle II loadings	Cycle III loadings
	Narrative fluency	Narrative fluency
Outcome	.78	.84
Happy outcome	.74	.82
Expression of feeling	.58	.38
Kind, loving	.38	.41
Happy, glad	.44	.40
Goal-oriented behavior	.44	.49
Causally connected statements	.64	.42
Past reference[1]	(.30)	.52
Future reference[1]	(.43)	.78
	Dysphoric mood	Emotionality
Death	.86	.68
Murder, killing	.82	.75
Unhappy outcome	.61	.51
	Emotionality	
Mean, rejecting	.67	.46
Hostile antagonism	.64	.52
Aggression	.59	.62
Bizarre theme	.57	.39
Egocentrism[2]	.44	(.16)
Morbid mood quality	.39	.45
	Verbal productivity	Verbal competence
Corrections	.80	.76
Future reference[3]	.73	(.18)
Past reference[3]	.72	(.26)
Pauses[2]	.69	(.12)
Adverbs	.58	.55
Verbatim repetitions	.51	.64
	Verbal fluency	
Nouns	.72	.87
Single verbs	.72	.89
Pronouns	.68	.85
Possessive adjectives	.65	.78
Dialogue	.65	.50

[1]These variables were used in Cycle II to define TAT factor I, verbal productivity.
[2]This variable was omitted from the Cycle III analysis due to its predominantly low intercorrelations with remaining variables.
[3]In the Cycle III analysis, these two variables were used to define TAT factor IV, narrative fluency.

storytelling ability or strategy using positive thematic components.

The Cycle III factor emotionality is interpreted as a merging of two Cycle II factors, dysphoric mood and emotionality. Dysphoric mood was defined in Cycle II by the variables unhappy outcome, death, and murder, killing, while emotionality was defined by the remaining five variables on the Cycle III factor of the same name. A comparison of the variable loadings for these factors is shown in table H. The only difference between the two Cycle II factors and their single counterpart in Cycle III is the omission in the latter of the variable egocentrism, as its correlations with other variables and factor loadings were consistently low.

The label "emotionality" was selected for the Cycle III factor because it contained all but one of the variables used to define the emotionality factor in Cycle II and because it was sufficiently inclusive to incorporate the variables defining the Cycle II dysphoric mood factor.

In a similar manner, the variables defining the Cycle III factor verbal competence were represented in two factors identified in the previous study, verbal productivity and verbal fluency. This factor is interpreted as reflecting a maturing and generalization of language traits that were differentiated and are believed to have distinctive importance in the younger sample. It is believed that the more mature linguistic behavior found in the Cycle III sample may represent the integration of the fluency component and productivity component derived from both the frequency count and stylistic variables; the latter appear to be more readily assigned, in the younger sample at least, to the productivity rather than to the fluency dimension.

The Cycle II report contained these general comments regarding the verbal fluency factor: "In evaluating the results, it should be kept in mind that a large proportion of the variance reflected in the TAT measures is accounted for in terms of the amount of verbiage produced in the stories. The more words that were produced, the greater the chance that expression of plot and character development would take place. While it is certainly possible to produce complex stories with relative brevity, the empirical findings of this study show consistent, high positive correlations between the production measures (count items) and items measuring other aspects of the responses. The first principal component resembled what would be the effect of combining into one factor the loadings of marker variables on the rotated factors I (verbal productivity), III (conceptual maturity), and VI (verbal fluency)."[1]

A number of different varimax-rotated solutions were examined in the Cycle III study; these differed in the number of factors rotated. In no case, however, did a distinctive verbal fluency factor appear. Given the foregoing, it can be concluded that the distinct fluency and productivity factors found in the younger sample do not remain distinctive in the older sample. This appears to be a genuine developmental change that should be important in the understanding of language behavior over the age periods covered in the two studies.

The defining items for the Cycle III verbal competence factor and the two Cycle II factors verbal productivity and verbal fluency are compared in table H. The essential difference observed relates to the verbal productivity variables of Cycle II; future reference and past reference, as noted previously, appeared more definitive of the narrative fluency composite for the Cycle III sample. The variable pauses was not included in the Cycle III verbal competence factor, as it showed low correlations with the remaining variables.

VALIDATION OF TAT SCALES

The preceding sections have described the development of cognitive and personality measures derived from the scores on oral TAT protocols as well as the development of behavioral and rating measures of health and intellectual, academic, and social functioning for use as criteria in the evaluation of the TAT factors. Factor analyses of questionnaire and psychological test data collected during the HES produced the following criterion composites: I. intellectual and academic level; II. illness history; III. parental care; IV. maturity and school adjustment; V. value orientations, parent and child; and VI. personal adjustment. The four TAT composites

Table J. Correlations among six criterion composites, four TAT composites, age, sex, and race

Variable	Criterion composites						TAT composites			
	I	II	III	IV	V	VI	I	II	III	IV
Criterion composite I: intellectual and academic level										
Criterion composite II: illness history	-.029									
Criterion composite III: parental care	.356	-.093								
Criterion composite IV: maturity and school adjustment	.296	.049	.312							
Criterion composite V: value orientations, parent and child	.158	.024	.202	.110						
Criterion composite VI: personal adjustment	.132	.241	.116	.207	.100					
TAT composite I: verbal competence	.170	-.015	.156	.097	.025	.009				
TAT composite II: conceptual maturity	.303	-.012	.199	.131	.100	.066	.488	.		
TAT composite III: emotionality	.002	-.005	.033	-.042	-.002	-.027	.391	.245		
TAT composite IV: narrative fluency	.304	-.026	.237	.160	.084	.064	.610	.624	.306	
Age	.277	-.025	-.029	-.073	.086	-.019	-.032	.003	-.037	-.002
Sex	.114	.038	-.029	.186	.073	-.079	.011	-	-.018	.024
Race	-.277	.027	-.271	-.054	-.036	-.063	-.014	-.114	.040	-.165

identified by a principal components analysis of 29 protocol scores are: I. verbal competence; II. conceptual maturity; III. emotionality; and IV. narrative fluency.

This section examines the validity of the four TAT measures as predictors of the six criterion composites. First, however, correlations of the TAT scales and the criterion measures with age, sex, and race are discussed. These are shown in table J, along with correlations of the criterion and TAT composites, which are discussed later.

Correlations of Criterion Measures With Age, Sex, and Race

Because the data in this study were obtained from a national probability sample, the correlations for age, sex, and race appearing in table J are estimates of the relationships between the respective variables found in the overall population represented by the Cycle III sample. Thus, it is of some interest to note the relatively sizable correlations between some of the criterion composites with age, sex, and race. The substantial correlation between intellectual level (criterion composite I) and age appears to reflect the fact that raw scores, rather than deviation scores, were used for the intellectual measures. Age-normed deviation scores were developed as a means of equating IQ levels from one age group to another, since raw scores tend to be correlated with age, as in the present case. As the population approaches developmental maturity, the correlation between raw scores and age is expected to diminish, with resulting lower correlations in the Cycle III sample than in the younger Cycle II sample. As a matter of interest,

the correlation between age and the intellectual development composite in Cycle II was .77, as compared with .28 in the present study.

A related developmental phenomenon may account for the correlation between sex (female) and the intellectual criterion composite ($r = .11$). This relationship presumably derives from an earlier intellectual and physical maturation in females.

A "reverse" developmental and cultural phenomenon may underlie the -.28 correlation obtained between race (black) and criterion composite I, intellectual and academic level. The relationship between race and the intellectual development composite was not as pronounced in the Cycle II study; the correlation coefficient was .15, being positive because the number values assigned to the two racial categories were reversed in the Cycle II analysis. Insofar as the intellectual and academic measures are concerned, the data suggest a gap between whites and blacks which widens progressively with increases in age. The interpretation ventured for the Cycle II findings concerning the impact on verbal intelligence measures of race-ethnic differences in language use may be equally applicable to the subjects of the present study. A more detailed discussion is presented in the next section.

The correlation of -.27 between race and parental care (criterion composite III) suggests that, in comparison with white parents, black parents as a group tend to display somewhat less concern over their children's health care and to be relatively less ambitious for their children's educational progress. One might speculate about the relationship of this finding to the black-white group differences on intellectual measures. Aside from differences in linguistic milieu and institutionalized educational practices, cultural factors may also contribute to the explanation of the empirical differences in academic and intellectual ability scores. This is a valuable perspective, for if black parents are less involved in the educational process or provide less motivation for their children's academic success than white parents do, then the differences are potentially modifiable.

Another correlation of interest is that between the criterion composite IV, maturity and school adjustment, and sex (female), $r = .19$. This appears to indicate, although very moderately, that adolescent females display more mature behavior in the academic setting than males do, and also that females are less likely to display antisocial or delinquent behavior.

Correlations of TAT Composites With Age, Sex, and Race

The four TAT composites displayed uniformly negligible correlations with both age and sex, as seen in table J; however, composites II (conceptual maturity) and IV (narrative fluency) were negatively correlated, -.11 and -.17, respectively, with race. These results reflect slight but statistically significant tendencies for black subjects to score lower on these two TAT composites than their white counterparts. Generally, these findings imply that black subjects responded somewhat less well than did whites to the testing situation and produced stories of somewhat less depth and less positive outlook than did whites.

In the previous study[1] with a preteen sample, a relationship between race and the TAT composite verbal productivity was found; white children tended to score somewhat higher on this composite. In the present study, with a teenage sample, the predictive validity of the TAT composites appears to shift from verbal productivity toward the conceptual maturity and narrative fluency factors. This is shown by the fact that narrative fluency predicts racial differences in the Cycle III sample, while verbal productivity predicted the same sort of differences with the younger subjects.

In the Cycle II report[1] the verbal productivity factor was seen as an indicator of the linguistic milieu with which children have contact. The position expressed in the previous study was as follows: "Black children, whose linguistic surroundings often differ from those of white children, have less contact with the prevailing patterns of English expression than do whites. Consequently, while the linguistic skills of blacks in their dialect may be comparable with those of whites, on verbal tests sensitive to the nondialect standard the verbal production of black children may be hampered."[1]

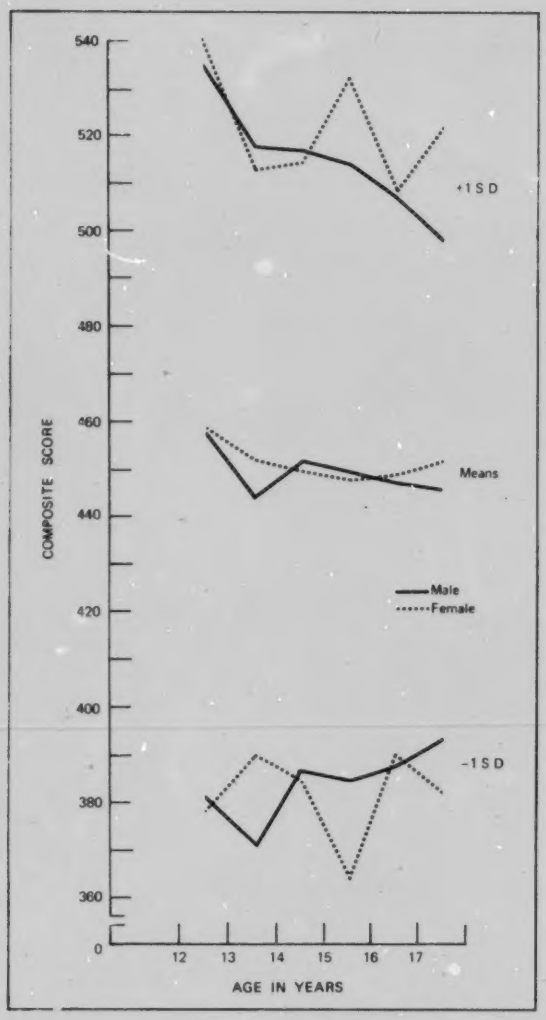

Figure 2. TAT composite I, verbal competence. Standard score means and scores at +1 and -1 standard deviation (SD) for youths, by sex and age.

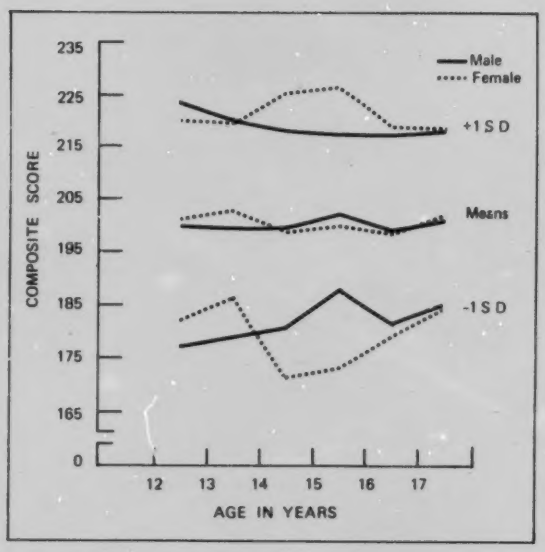

Figure 3. TAT composite II, conceptual maturity. Standard score means and scores at +1 and -1 standard deviation (SD) for youths, by sex and age.

At least two related conclusions concerning language differences in relation to race are suggested by the findings. First, if the predominant linguistic setting is to become a meaningful applied variable in developmental linguistics, it would seem that "within-milieu" comparability would require extensive exploration. Establishing the relevance of a set of scales for a particular linguistic community would appear to be a necessary first step in such an exploration. With reference to the Cycle II and Cycle III studies, the TAT scales constructed from the HES data may be valid predictors of the behaviors and development of some but not all members of the sample. Perhaps other scales, established within the black linguistic community, might better serve to predict the developmental and adjustment behaviors of black subjects.

The second point is expressed in hypothetical form. Linguistic behavior develops within a linguistic community; it is elicited and controlled by that community. Blacks in America have a linguistic community separate from whites, and, therefore, black children develop different language habits from those of white children. If these hypotheses are valid, then black children as a group should perform less well than whites when examined on the basis of the prevailing white American language standards as long as substantial differences remain in the respective linguistic communities.

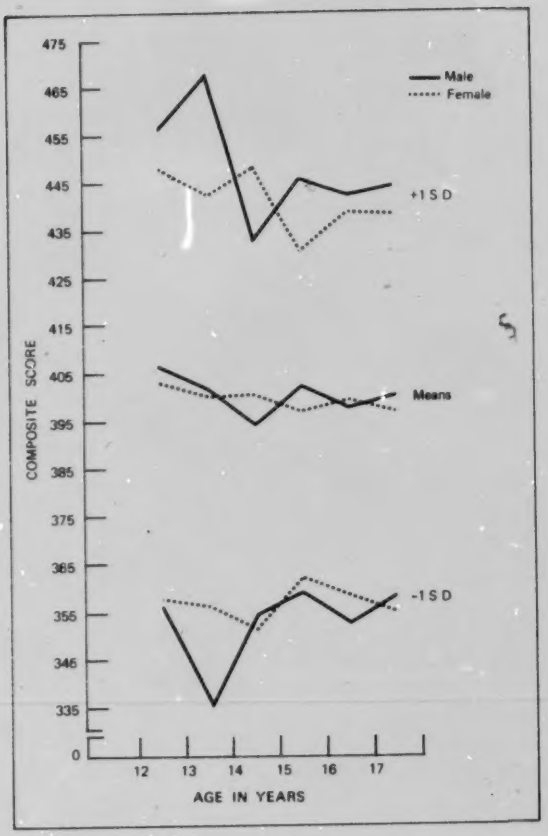

Figure 4. TAT composite III, emotionality. Standard score means and scores at +1 and -1 standard deviation (SD) for youths, by sex and age.

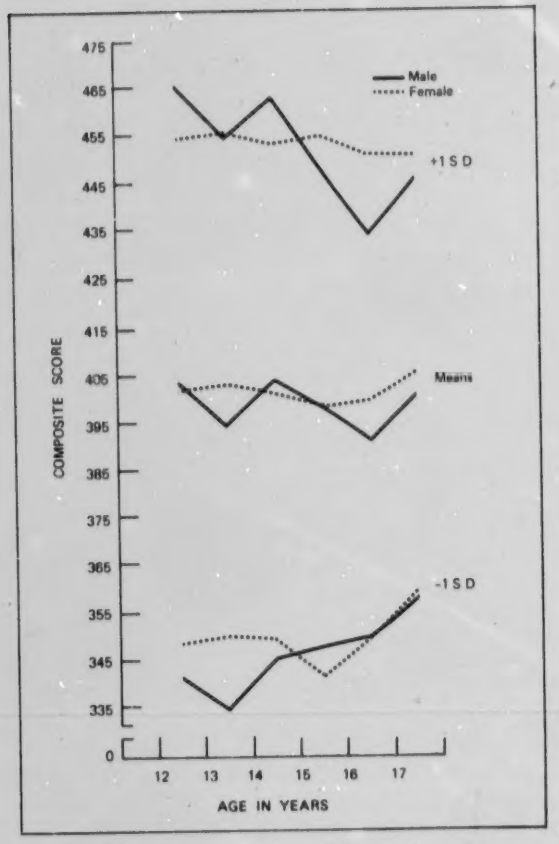

Figure 5. TAT composite IV, narrative fluency. Standard score means and scores at +1 and -1 standard deviation (SD) for youths, by sex and age.

The 1,398 subjects were divided into 12 age-sex groups, and means and standard deviations were computed within each group for each of the four TAT composites. These results are presented by age groups for males and females separately and for the total subsample in table 21. The age means of the four scales reported in table 21 are also plotted in figures 2-5. In addition, the scores obtained by members of each group falling one standard deviation above or below the respective group means are shown for each composite.

Examination of figures 2-5 reveals that, in contrast to the Cycle II data, there is little differentiation between groups in their mean scores on the TAT composites. Furthermore, the overlap in composite scores across the Cycle II age groups, in which the younger children scoring above the mean exceeded the mean scores of older children, is not found for the adolescent sample. These figures provide a graphic illustration of the negligible correlations between the four Cycle III TAT composites and age, as shown previously in table J.

These results appear to indicate that by the age of 12 most of the significant aspects of language development as measured by the TAT scales have taken place. The implications of these findings for programs of language remediation are that such programs, to be successful, should be implemented prior to the individual's attainment of linguistic maturity.

Correlations Between TAT and Criterion Composites

A correlation matrix representing the two sets of composites appears in table J. Cursory inspection of the table reveals a clustering of (1) criterion composites I (intellectual and academic level), III (parental care), and IV (maturity and school adjustment); (2) TAT composites I (verbal competence), II (conceptual maturity), and IV (narrative fluency); and (3) each of these sets with one another. In addition, it appears that criterion composites II (illness history), V (value orientations), and VI (personal adjustment) are not related to the behaviors predicted by the TAT variables. Finally, emotionality (TAT composite III) does not predict any of the areas represented by the criterion composites.

In view of the substantial correlations among the TAT composites, their predictive validity is difficult to interpret. However, since intercorrelations between orthogonalized TAT factors are zero, it would be of interest to examine the correlations of these uncorrelated factor scores with the variables presented in table J. The method of obtaining orthogonal factors is given elsewhere.[1] The resulting correlation matrix including uncorrelated TAT factor scores is shown in table 22.

The apparent effect of the shift to uncorrelated TAT factor scores is to reduce the correlations with criterion variables relative to the corresponding set of correlations for the four TAT composites. However, to illustrate the effect on the multiple correlation with an outside variable, one may compare the multiple correlation of (1) TAT composites II (conceptual maturity) and IV (narrative fluency) with criterion composite I (intellectual and academic level) and (2) TAT factor scores II and IV with the same criterion composite. Even though the correlations of the TAT composites with criterion composite I are .303 and .304, respectively (table J), the multiple correlation of these TAT composites with the first criterion composite is .318. On the other hand, the TAT orthogonal factors II and IV (conceptual maturity and narrative fluency) have lower separate correlations with the first criterion composite (.202 and .270, respectively, table 22), but their multiple correlation with the criterion score is .335, larger than the .318 obtained when the TAT composites of the same name were used.

It is not altogether surprising to see the predictive validity of the TAT established in the areas of conceptual maturity and narrative fluency. It is disappointing, of course (as in the previous study with the Cycle II data), to observe the inconsequential validity coefficients for the emotionality items represented on TAT composite III. The previously suggested conclusion, that this factor represents a fantasy-production variable not openly reflected in real-life situations,[1] appears equally applicable to the present sample.

Two noteworthy additional developments appear in the Cycle III data. First, the general level of prediction obtained in the Cycle III sample drops in comparison with the Cycle II data. This seems most likely to be a function of the "leveling off" or maturation effect in the present sample.

It is interesting also to note the shift from verbal productivity as the major predictor of criterion variables in the younger Cycle II sample to the composites conceptual maturity (II) and narrative fluency (IV) in the older Cycle III sample. This is believed to be an important developmental change in that the wide variations in productivity skills of children in the 6-11 age range tend to level off with increasing development. These production factors play less and less a role in the expressive capability and eventually tend to subserve the more discriminative skills reflected in the conceptual maturity and narrative fluency factors.

Table 22 presents the multiple correlations of TAT factor scores with the six criterion composites and with age, sex, and race. The concurrent validity of the predictors may best be evaluated in terms of the multiple correlation coefficients. For criterion composites I (intellectual and academic level), III (parental care), IV (maturity and school adjustment), V (value orientations), and VI (personal adjustment), the multiple correlations range from a high of .354 (for criterion composite I) to a low of .102 (for criterion composite VI).

These multiple correlations are meaningful estimates of the relationships among these vari-

ables for the population of adolescents in the United States. Since the data can be generalized, the results of the analysis presented in table 22 indicate that in the adolescent population at large scores on the five-card, orally administered TAT predict concurrently about 12 percent of the variance found in the intellectual and academic criterion, about 6 percent of the variance in the parental care composite scores, and a decreasing amount of the variance associated with the four remaining criterion composites.

In view of the foregoing, the value of the TAT scales must be assessed in terms of their possible uses. These are believed to be:

(1) *Cross-cultural studies.* The relationships among TAT scores, race, and intellectual measures suggest that the TAT scales would have utility in studies with racially diverse subjects, samples with heterogeneity of intellectual levels, and studies requiring measures of complex verbal responses. These TAT scales might also be used as a matching or control variable in other research.

(2) *Measurement of oral language.* The TAT scales seem well suited as a unique means of quantifying the more complex aspects of development of oral language. Although originally developed as a personality assessment instrument, the TAT's ultimate value may lie in its utilization in linguistic research, possibly cross-cultural linguistic research.

On the other hand, as a clinical instrument the objectively scored TAT appears to be inappropriate for assessing personal adjustment. Among adolescents the TAT scales account for only about 1 percent of the variance associated with the personal adjustment criterion composite. Thus, for individual counseling purposes the present TAT scales should be used with caution.

NATIONAL NORMS FOR TAT SCALES

A total of 6,768 adolescents representing a cross section of youths ages 12-17 in the continental United States were examined during the Cycle III survey. For the present study, a national probability subsample of 1,437 subjects was drawn from the total sample. The loss of 39 cases with missing data or unscorable protocols resulted in a final subsample of 1,398 subjects (table 3), which was employed in the TAT and criterion analyses described in the preceding sections. These 1,398 subjects comprising the final subsample provided the population base for the computation of norms for the TAT composites, reported in this section. Furthermore, since the subsample itself was designed as representative of youths in the 12-17-year-old range, these cases also serve as the normative base for projections to the total population.

All of the scored TAT variables used to define the four TAT composites were converted to a common scale with a mean of 50 and a standard deviation of 10. The 29 variables rescaled in this manner are the marker items previously listed in table C. Table I in appendix III presents the raw scores and their standard score equivalents for each of these variables.

After the raw scores on the 29 defining variables were converted to standard scores, composite scores were then obtained for the TAT factors by summing the unweighted standard scores of the items defining each of the four TAT factors. Thus, four algebraically summed scores were computed for each subject.

Norms were computed for composite scores rather than for uncorrelated factor scores. Not only was the computation of the composites far simpler than that for factor scores, but also most applications of these scales would best be facilitated by norms based on unweighted scales.

Norms for the national probability subsample for each of the Cycle III TAT scales are presented in table II in appendix III. Cumulative percentile tables for the four scales have been computed for males and females separately. Because of the lack of differentiation among age groups in their mean scores on the TAT composites, the norms are calculated for the adolescent age range rather than by each of the years 12-17. Sex norms are provided not only because of slight differences in some distributions which may be of interest but also to show the close similarity of the distributions for boys and girls. The HES version of the TAT can be administered to any youth, his scores on the scales determined, and these scores on each scale compared with a representative sample of adolescents of his own sex. The procedures are explained below.

In order for the norm tables to be of value, the raw scores on each of the TAT variables must be converted to standard scores. Raw scores and their standard score equivalents are given separately in table I in appendix III for the 29 items included in the four TAT composites. The standard scores on the appropriate defining variables for each factor must then be summed. In the present study, this procedure yielded four TAT composite scores for each of the 1,398 youths comprising the national probability subsample for the 12-17 year age group.

Once the total scores were obtained, distributions of frequency, cumulative frequency, percentage, and cumulative percentage were computed for each 5-point composite score interval by sex groups for each of the four scales. Based on the cumulative percentage distributions, percentile tables were calculated (table II, appendix III). These percentile tables show for any composite score interval the percentage of the norm sample obtaining a score within or below that interval.

Obtaining an adolescent's ranking on the TAT factors in comparison to the national probability sample of youths of the same age and sex is relatively straightforward. As an illustration, assume that the TAT has been administered to a female adolescent, and her relative performance on the verbal competence scale (TAT composite I) is desired. First, her raw scores on the eight items defining this factor (table G) are determined; then the standard score equivalents for these raw scores are obtained. Assume that this girl obtained the following raw scores on the variables comprising verbal competence: single verbs, 73; nouns, 103; pronouns, 94; possessive adjectives, 16; corrections, 2; repetitions, 6; adverbs, 10; and dialogue, 1. As shown in table I in appendix III, the standard scores corresponding to the girl's raw scores on these eight defining variables are, respectively, 54, 70, 65, 63, 40, 51, 73, and 64. These standard scores are then summed to arrive at a total composite score of 480 on the verbal competence factor.

The girl's percentile ranking in comparison to females in the national probability subsample is obtained from the column of scores for females in table II, the verbal competence percentile table in appendix III. In this case, our hypothetical girl's composite score of 480 falls at the 79th percentile, indicating that 79 percent of the females in the national probability subsample obtained an equal or lower score on the composite verbal competence.

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Table 1. Health Examination Survey Cycle III subsample (n=1,437), by race, sex, and age

Age	Total			White			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	1,437	736	701	1,201	630	571	236	106	130
12 years	249	136	113	204	113	91	45	23	22
13 years	248	127	121	204	106	98	44	21	23
14 years	234	109	125	193	95	98	41	14	27
15 years	226	116	110	193	101	92	33	15	18
16 years	245	134	111	208	117	91	37	17	20
17 years	235	114	121	199	98	101	36	16	20

Table 2. Subjects eliminated (n=39) from Cycle III subsample for nonavailability of TAT or criterion data, by race, sex, and age

Age	Total			White			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
	Number of subjects								
All ages	39	15	24	29	9	20	10	6	4
12 years	8	3	5	6	1	5	2	2	0
13 years	6	4	2	3	2	1	3	2	1
14 years	7	2	5	4	1	3	3	1	2
15 years	3	1	2	3	1	2	0	0	0
16 years	5	2	3	4	2	2	1	0	1
17 years	10	3	7	9	2	7	1	1	0
	Percent of subjects								
All ages	2.7	2.0	3.4	2.4	1.4	3.5	4.2	5.7	3.1

Table 3. Cycle III subsample employed in TAT and criterion analyses (n=1,398), by race, sex, and age

Age	Total			White			Black		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All ages	1,398	721	677	1,172	621	551	226	100	126
12 years	241	133	108	198	112	86	43	21	22
13 years	242	123	119	201	104	97	41	19	22
14 years	227	107	120	189	94	95	38	13	25
15 years	223	115	108	190	100	90	33	15	18
16 years	240	132	108	204	115	89	36	17	19
17 years	225	111	114	190	96	94	35	15	20

Table 4. Number and percent of rejections of five TAT cards, by race, sex, and age

Race, sex, and age	Number of youths in sample	Rejections of TAT cards									
		Card 1		Card 2		Card 5		Card 8 BM		Card 16	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All males											
12-17 years	721	8	1.1	15	2.1	11	1.5	12	1.7	24	3.3
12 years	133	4	3.0	5	3.8	4	3.0	5	3.8	8	6.0
13 years	123	3	2.4	5	4.1	3	2.4	2	1.6	4	3.3
14 years	107	-	-	4	3.7	1	0.9	3	2.8	5	4.7
15 years	115	-	-	-	-	1	0.9	-	-	1	0.9
16 years	132	1	0.8	-	-	1	0.8	1	0.8	4	3.0
17 years	111	-	-	1	0.9	1	0.9	1	0.9	2	1.8
White males											
12-17 years	621	7	1.1	12	1.9	10	1.6	10	1.6	20	3.2
12 years	112	3	2.7	5	4.5	4	3.6	5	4.5	7	6.3
13 years	104	3	2.9	4	3.8	3	2.9	2	1.9	4	3.8
14 years	94	-	-	3	3.2	1	1.1	2	2.1	3	3.2
15 years	100	-	-	-	-	1	1.0	-	-	1	1.0
16 years	115	1	0.9	-	-	1	0.9	1	0.9	4	3.5
17 years	96	-	-	-	-	-	-	-	-	1	1.0
Black males											
12-17 years	100	1	1.0	3	3.0	1	1.0	2	2.0	4	4.0
12 years	21	1	4.8	-	-	-	-	-	-	1	4.8
13 years	19	-	-	1	5.3	-	-	-	-	-	-
14 years	13	-	-	1	7.7	-	-	1	7.7	2	15.4
15 years	15	-	-	-	-	-	-	-	-	-	-
16 years	17	-	-	-	-	-	-	-	-	-	-
17 years	15	-	-	1	6.7	1	6.7	1	6.7	1	6.7
All females											
12-17 years	677	10	1.5	17	2.5	17	2.5	17	2.5	35	5.2
12 years	108	-	-	2	1.9	3	2.8	4	3.7	6	5.6
13 years	119	-	-	1	0.8	2	1.7	1	0.8	4	3.4
14 years	120	5	4.2	7	5.8	7	5.8	6	5.0	9	7.5
15 years	108	3	2.8	4	3.7	3	2.8	3	2.8	7	6.5
16 years	108	2	1.9	1	0.9	1	0.9	2	1.9	4	3.7
17 years	114	-	-	2	1.8	1	0.9	1	0.9	5	4.4
White females											
12-17 years	551	6	1.1	11	2.0	14	2.5	14	2.5	27	4.9
12 years	86	-	-	1	1.2	2	2.3	3	3.5	4	4.7
13 years	97	-	-	1	1.0	2	2.1	1	1.0	3	3.1
14 years	95	2	2.1	3	3.2	5	5.1	4	4.2	7	7.4
15 years	90	3	3.3	4	4.4	3	3.3	3	3.3	7	7.8
16 years	89	1	1.1	1	1.1	1	1.1	2	2.2	4	4.5
17 years	94	-	-	1	1.1	1	1.1	1	1.1	2	2.1
[4]Black females											
12-17 years	126	4	3.2	6	4.8	3	2.4	3	2.4	8	6.3
12 years	22	-	-	1	4.5	1	4.5	1	4.5	2	9.1
13 years	22	-	-	-	-	-	-	-	-	1	4.5
14 years	25	3	12.0	4	16.0	2	8.0	2	8.0	2	8.0
15 years	18	-	-	-	-	-	-	-	-	-	-
16 years	19	1	5.3	-	-	-	-	-	-	-	-
17 years	20	-	-	1	5.0	-	-	-	-	3	15.0

Table 5. Differences between proportions of rejections of five TAT cards, by race and sex groups

Comparison group and variable	TAT card				
	1	2	5	8 BM	16
All males-all females:					
Difference in proportions	.0036	.0043	.0098	.0084	.0184
Standard error of difference	.0060	.0080	.0074	.0076	.0107
White males-white females:					
Difference in proportions	-.0003	.0006	.0093	.0093	.0167
Standard error of difference	.0061	.0081	.0082	.0082	.0114
Black males-black females:					
Difference in proportions	.0217	.0176	.0138	.0038	.0234
Standard error of difference	.0196	.0261	.0176	.0196	.0300
All blacks-all whites:					
Difference in proportions	-.0110	-.0201	.0027	-.0016	-.0129
Standard error of difference	.0081	.0108	.0101	.0103	.0146
Black males-white males:					
Difference in proportions	.0012	-.0106	.0061	-.0038	-.0077
Standard error of difference	.0112	.0153	.0132	.0137	.0193
Black females-white females:					
Difference in proportions	-.0208	-.0276	.0015	.0015	-.0144
Standard error of difference	.0119	.0154	.0154	.0154	.0218

NOTE: None of the differences between proportions were statistically significant.

Table 6.- Correlations[1] among 45 criterion variables from Medical History of Youth—Parent's Questionnaire

	Variable	Variable																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Born in hospital																		
2	Difficulty before age 1	-05																	
3	Serious health problems since age 1	-02	21																
4	Health problems of youth worrying parents	-01	13	30															
5	Present health	14	05	18	30														
6	Medicine used regularly	-01	12	27	27	20													
7	Any operations	-17	14	09	03	-	11												
8	Hospitalized overnight or longer	-14	19	17	08	02	09	66											
9	Asthma	-	21	24	08	14	20	02	-03										
10	Other diseases	-02	14	29	10	08	18	06	14	09									
11	Limp, other trouble walking	-02	08	03	06	06	-01	03	06	06	09								
12	Use of legs restricted	02	06	08	11	01	04	02	07	06	08	41							
13	Exercise now restricted	-	10	21	20	19	16	09	10	19	10	30	33						
14	Exercise restricted on doctor's advice	07	09	20	18	21	12	07	06	14	08	25	28	90					
15	Exercise ever restricted	-05	14	37	18	13	19	09	18	21	30	16	19	34	30				
16	Teeth straightened	-11	-05	03	-01	-10	01	14	06	06	02	-	-	01	-	04			
17	Rate of mental development	02	-	05	10	09	07	04	01	-01	-01	-	-02	01	01	-02	-01		
18	Overnight visits with friends	19	-06	-05	-06	10	-03	-11	-11	-	-05	01	-	-01	-	-10	-13	06	
19	Attended kindergarten	30	-04	-04	03	11	-03	-11	-08	-	01	-	01	-01	02	-06	-14	-07	11
20	First reaction to school	09	02	05	09	19	05	-01	02	01	01	09	05	08	12	06	-03	10	09
21	Ease in making friends	04	06	02	06	12	04	02	02	07	02	02	01	09	13	04	-01	12	-
22	Friends known to parents	17	-02	-01	04	13	-	-07	-04	01	-01	06	04	05	08	-	-07	05	19
23	Trouble to raise	-	06	05	07	15	05	-	03	-01	06	09	06	03	04	08	-03	16	-04
24	Calm or nervous	-01	10	13	21	22	12	05	08	04	04	06	03	07	09	10	01	16	-06
25	Been to mental hospital or guidance clinic	06	01	07	03	05	05	-	04	04	02	01	02	01	-	03	01	23	-
26	Seen psychiatrist or psychologist	-01	02	-	02	06	04	02	06	01	-	01	-	-	-	04	11	29	-01
27	Amount eats	-	-	06	19	14	03	03	-	06	-	01	-01	03	03	02	-	09	01
28	Parent's desires on youth's schooling	21	-04	-02	-	24	-02	-13	-09	-04	-	03	-02	07	15	-05	-19	08	12
29	What parent thinks will happen on youth's schooling	22	-03	-	04	27	-01	-12	-07	-04	-	04	-01	04	11	-05	-21	10	12
30	Importance of being neat and clean	06	-	-01	-	-	03	-01	01	-20	-01	01	01	-01	05	-	07	01	-05
31	Importance of being able to defend self	-	-	03	-01	-	-02	-	01	-	01	-	01	-02	01	04	05	-	-10
32	Importance of having self-control	08	-03	03	-	09	-	-08	-06	01	03	-	-04	-	06	-	-	-	03
33	Importance of being happy	08	-04	-	-01	05	03	-05	-02	-01	01	-	-01	-02	04	02	-	04	02
34	Importance of obeying parents	03	-01	-	03	03	01	01	-	-	-	-	-02	-01	05	01	09	-	-06
35	Importance of being dependable	16	-04	-01	04	10	-01	-09	-07	-04	-	-	-02	-01	04	-05	-01	-	06
36	Importance of being considerate of others	10	-03	-02	-	10	-01	-06	-04	-03	01	02	-01	-03	03	-03	-01	-03	07
37	Importance of facing life's problems calmly	08	-01	-	-	07	01	-	-	-02	-	-01	-01	-01	04	-	01	02	-01
38	Importance of obeying law	11	-04	01	04	10	01	-06	-06	-03	-03	01	-01	-01	07	-02	-01	03	04
39	Importance of being ambitious	07	-	01	-01	04	03	-01	-	02	-	-01	01	-	06	04	01	02	-05
40	Importance of knowing how to keep in good health	08	-01	-	-	06	05	-02	-02	-	02	-	-	-01	04	-01	05	03	-02
41	How often exaggerates when ill	-02	04	05	07	17	06	02	01	04	02	02	-01	-	04	02	-02	14	-05
42	Doctor last seen for checkup	16	-09	-11	-07	06	-11	-21	-21	-16	-09	-	-02	-07	-03	-13	-10	-	11
43	Doctor last seen for treatment	15	-09	-14	-13	-02	-18	-25	-25	-10	-11	-01	-07	-11	-07	-19	-08	-02	14
44	Dentist last seen for checkup	25	-08	-05	01	17	-05	-17	-15	-03	-02	07	02	-05	07	-06	-20	05	19
45	Dentist last seen for treatment	23	-03	-03	02	14	-02	-16	-13	-02	-03	04	01	02	05	-07	-21	03	18

[1] Decimal points have been omitted.

Table 6. Correlations[1] among 45 criterion variables from Medical History of Youth—Parent's Questionnaire—Con.

Variable																									
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	
																										1
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-03	14																									21
09	14	19																								22
-02	16	23	17																							23
-02	16	19	10	29																						24
01	06	11	04	10	11																					25
-05	10	09	-	20	17	47																				26
-	09	06	06	15	13	05	09																			27
19	15	09	16	05	08	09	03	-																		28
23	18	13	18	12	11	07	05	06	78																	29
-03	02	16	07	06	02	02	02	-01	08	04																30
-04	-	11	-	11	02	02	04	-01	03	-	41															31
02	05	10	08	02	01	03	02	-	18	14	43	40														32
-03	02	12	08	06	-	03	04	-	16	12	47	34	46													33
-05	06	13	06	05	06	-	04	-	05	03	51	35	44	47												34
06	04	07	06	02	02	-	02	-	19	16	35	29	50	43	45											35
03	04	08	10	03	06	-01	01	-	16	14	35	32	53	44	47	64										36
-01	01	11	08	04	05	01	05	-02	15	10	40	43	50	48	43	48	52									37
-	03	14	09	05	04	02	04	-02	15	13	39	25	41	41	49	49	49	42								38
-02	04	13	11	11	03	-04	04	01	13	11	45	45	44	51	43	41	42	54	37							39
-02	01	12	08	04	04	-	01	-03	12	09	49	35	44	47	44	43	43	47	44	50						40
-05	11	11	06	23	17	09	09	10	06	13	08	12	07	06	07	06	09	11	14	10	08					41
15	06	08	16	04	-02	-02	-04	-02	20	19	02	04	07	07	-	07	07	04	05	06	05	-				42
09	02	01	10	-02	-06	-05	-08	-04	14	12	01	03	06	06	-01	07	08	04	02	02	-	-06	44			43
20	11	08	24	04	04	-	-02	03	25	28	-	-01	08	07	01	09	09	05	07	03	03	03	37	26		44
17	08	04	17	-	-	-	-02	02	19	21	-03	-05	04	03	-01	05	08	02	06	-	-	04	26	26	76	45

Table 7. Varimax rotated loadings of 45 criterion variables from Medical History of Youth—Parent's Questionnaire

Variable	Rotated factor			
	A-I	A-II	A-III	A-IV
Importance of facing life's problems calmly	.74	-	.02	.05
Importance of being considerate of others	.73	-.01	.14	-
Importance of being ambitious	.72	.03	-	.05
Importance of having self-control	.72	.01	.10	.01
Importance of obeying parents	.72	-	-.07	.03
Importance of knowing how to keep in good health	.71	-	-	.03
Importance of being happy	.71	-.01	.04	.04
Importance of being dependable	.71	-.02	.15	-
Importance of being neat and clean	.69	-.01	-.06	.03
Importance of obeying the law	.66	-	.10	.07
Importance of being able to defend self	.59	-.02	-.10	.04
Exercise now restricted	-.01	.80	.10	-.08
Exercise restricted on doctor's advice	.07	.76	.17	-.05
Exercise ever restricted	.01	.60	-.16	.04
Serious health problems since age 1	-	.51	-.15	.16
Anything preventing complete use of legs	-.13	.48	.05	-.12
Limp, other trouble walking	-	.43	.10	-.05
Health problems of youth worrying parents	-.01	.41	-.02	.27
Asthma	-.02	.38	-.08	.05
Medicine used regularly	.01	.37	-.14	.21
Other diseases such as polio, rheumatic fever, diabetes, etc.	.01	.35	-.10	.05
Present health	.05	.34	.27	.37
Difficulty before age 1	-.03	.31	-.18	.11
Dentist last seen for checkup	.02	.04	.70	.06
Dentist last seen for treatment	-.01	.03	.64	.03
What parent thinks will happen on youth's schooling	.11	.05	.57	.32
Parent's desires on youth's schooling	.16	.05	.56	.24
Doctor last seen for checkup	.05	-.15	.53	-.01
Born in hospital	.09	.01	.48	.02
Doctor last seen for treatment	.04	-.25	.48	-.13
Any operations	-.04	.20	-.45	.11
Attended kindergarten	-.04	.02	.43	-.04
Hospitalized overnight or longer	-.02	.27	-.41	.15
Overnight visits with friends	-.04	-.05	.39	-
Teeth straightened	.06	-	-.39	-.01
Friends known to parents	.09	.07	.36	.21
Seen psychiatrist or psychologist	.01	-.08	-.11	.57
Calm or nervous	.02	.16	-.01	.54
Rate of mental development	-.01	-.06	-	.53
Trouble to raise	.06	.06	.02	.53
Been to mental hospital or guidance clinic	-.02	-.04	-.03	.51
How often exaggerates when ill	.12	.03	-	.42
Ease in making friends	.17	.10	.08	.37
First reaction to school	.01	.14	.20	.34
Amount eats	-.04	.06	.01	.34
Eigenvalues	5.55	3.36	3.76	2.63
Percentage of variance accounted for	12.06	7.30	8.18	5.71

Table 8. Correlations[1] among 23 criterion variables from Health-Habits and History—Youth's Questionnaire

Variable	Variable																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1 Present health																						
2 Problems to discuss with doctor	11																					
3 Medicine used regularly	11	10																				
4 Hospitalized overnight or longer	01	01	14																			
5 Earaches in past year	13	07	06	-																		
6 Exercise ever restricted	12	06	16	18	02																	
7 Exercise ever restricted on doctor's advice	13	05	14	15	04	95																
8 Exercise now forbidden	18	10	21	13	06	45	45															
9 Estimate of weight	11	04	01	02	04	02	02	02														
10 Weight comparison	12	05	02	01	03	03	02	05	57													
11 Weight preference	06	03	02	07	05	03	02	03	56	43												
12 Backaches in last year or two	17	19	08	12	16	16	16	11	10	08	11											
13 Sleep alone in own room	09	-	-03	-08	01	-11	-10	-04	-01	01	-05	-02										
14 Trouble getting to sleep	11	10	02	06	15	08	09	05	10	10	11	19	-03									
15 Bother from acne	05	16	06	08	11	08	07	08	03	04	08	14	-04	13								
16 Amount eats	11	06	02	01	08	02	01	01	35	31	28	06	-	15	09							
17 Doctor last seen for checkup	07	-	-15	-21	01	-11	-10	-06	01	04	-	-03	17	-04	-01	04						
18 Doctor last seen for treatment	-02	-02	-20	-22	-04	-19	-17	-11	-01	-01	-03	-09	13	-03	-07	-	35					
19 Dentist last seen for checkup	19	02	-02	-14	02	-09	-07	-	01	04	-	02	18	-03	01	07	35	23				
20 Dentist last seen for treatment	14	-	-	-10	02	-09	-07	-	-	01	-	-	13	-01	-01	02	22	27	74			
21 Hours per day listening to radio	-01	-01	-	03	-03	-01	-02	-01	-10	-06	-07	-04	08	-04	-06	-09	-	02	01	05		
22 Hours per day reading newspapers, magazines, comics	-	-06	-	-	03	01	02	01	03	03	01	-01	05	-07	-01	-03	07	03	08	04	22	
23 Hours per day reading books	-01	-03	-01	-02	-02	01	03	04	-	-02	-03	-04	03	-04	-01	-	01	06	05	02	-	32

[1]Decimal points have been omitted.

Table 9. Varimax rotated loadings of 23 criterion variables from Health Habits and History—Youth's Questionnaire

Variable	Rotated factor			
	B-I	B-II	B-III	B-IV
Dentist last seen for checkup	-.83	.02	.06	.08
Dentist last seen for treatment	-.78	-.02	.05	.08
Doctor last seen for checkup	-.60	.05	-.10	-.06
Doctor last seen for treatment	-.52	-	-.22	-.14
Sleep alone in own room	-.37	-.03	-.06	-.05
Hospitalized overnight or longer	.33	.04	.25	.10
Estimate of weight	.02	.85	.01	.03
Weight comparison	-.03	.78	.03	.04
Weight preference	.07	.76	.01	.07
Amount eats	-.06	.57	-	.19
Exercise ever restricted on doctor's advice	.13	-	.89	-.02
Exercise ever restricted	.17	.01	.88	-.01
Exercise now forbidden	.01	.01	.68	.07
Medicine used regularly	.10	-.02	.33	.20
Hours per day reading newspapers, magazines, comics	-.18	.12	.20	-.51
Backaches in last year or two	-.01	.10	.25	.46
Problems to discuss with doctor	-.05	.01	.11	.46
Hours per day reading books	-.17	.08	.18	-.46
Trouble getting to sleep	.04	.16	.09	.44
Bothered from acne	.02	.06	.11	.41
Earaches in past year	-.08	.05	.10	.38
Present health	-.30	.13	.30	.32
Hours per day listening to radio	-.10	.12	.08	-.29
Eigenvalues	2.41	2.34	2.55	1.73
Percentage of variance accounted for	10.49	10.15	11.07	7.54

Table 10. Correlations[1] among 15 criterion variables from Supplemental Information From School

Variable	Variable													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Grades repeated														
2 Reason grades repeated	92													
3 Unusual number of absences	16	15												
4 Main reason for absences	-	02	38											
5 Disciplinary action required	20	21	14	-05										
6 Resource needed—slow learner	19	15	04	-03	15									
7 Resource needed—emotionally disturbed	14	12	08	03	14	13								
8 Resource needed—hard of hearing	-01	-	-	-01	04	16	-02							
9 Resource needed—remedial reading	19	17	02	-05	13	32	05	16						
10 Resource needed—remedial training in special subject	12	11	06	-	09	23	07	25	39					
11 Adjustment	15	13	17	50	19	16	28	-01	09	10				
12 Intellectual ability	28	24	11	10	24	31	06	-	22	10	27			
13 Academic achievement	25	23	21	12	27	24	11	-	21	10	34	66		
14 Popularity with other students	14	13	17	11	19	16	18	-	09	09	38	32	41	
15 Grade placement	20	17	-05	06	12	08	07	-	15	05	14	16	04	06

[1]Decimal points have been omitted.

Table 11. Varimax rotated loadings of 15 criterion variables from Supplemental Information From School

Variable	Rotated factor		
	C-I	C-II	C-III
Grades repeated	.94	-.09	.01
Reason grades repeated	.94	-.07	.05
Disciplinary action required	.32	-.25	-.21
Grade placement	.32	-.07	-.09
Adjustment	.05	-.77	-.05
Main reason for absences	-.15	-.65	.22
Academic achievement	.26	-.62	-.25
Popularity with other students	.10	-.60	-.15
Intellectual ability	.31	-.52	-.29
Unusual number of absences	.10	-.51	.13
Resource needed—emotionally disturbed	.14	-.30	-.08
Resource needed—remedial reading	.22	-.04	-.68
Resource needed—remedial training in special subject	.09	-.04	-.68
Resource needed—slow learner	.17	-.18	-.58
Resource needed—hard of hearing	-.11	.08	-.55
Eigenvalues	2.37	2.53	1.91
Percentage of variance accounted for	14.79	15.80	11.91

Table 12. Correlations[1] among 19 criterion variables from Health Behavior—Youth's Questionnaire

Variable	Variable																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Desires about schooling																		
2 What believe will happen about schooling	80																	
3 Ever had a date	-02	-02																
4 Who makes most decisions on choosing clothes	02	-01	28															
5 Times questioned by police	03	04	-20	-11														
6 Ever arrested	06	06	-20	-11	85													
7 Age first smoked	08	12	-37	-17	20	21												
8 Age began smoking regularly	16	15	-24	-13	26	26	36											
9 Number cigarettes smoked per day	20	20	-27	-14	29	28	42	75										
10 Importance of being neat and clean	01	03	08	05	01	03	-	-01	-01									
11 Importance of having self-control	13	12	07	07	-02	-	-07	-	-01	24								
12 Importance of being happy	09	08	16	08	02	01	-13	-	-02	24	23							
13 Importance of obeying parents	03	04	-18	-10	12	11	17	15	16	38	27	10						
14 Importance of being dependable	15	12	03	04	-01	-	-	06	05	27	36	23	29					
15 Importance of being considerate of others	16	15	05	05	-	03	-	06	06	30	39	34	28	43				
16 Importance of facing life's problems calmly	09	11	04	01	-	-	02	02	03	23	31	24	23	33	36			
17 Importance of obeying the law	05	07	-11	-07	13	13	12	18	18	34	29	11	57	29	28	26		
18 Importance of being ambitious	12	13	11	09	02	02	-03	-	-01	16	25	28	08	24	29	30	15	
19 Importance of knowing how to keep in good health	03	04	-02	-05	04	05	05	05	06	40	24	21	44	27	30	28	43	19

[1]Decimal points have been omitted.

Table 13. Varimax rotated loadings of 19 criterion variables from Health Behavior—Youth's Questionnaire

Variable	Rotated factor		
	D-I	D-II	D-III
Importance of being considerate of others	.67	.04	.19
Importance of knowing how to keep in good health	.66	-.12	-.14
Importance of obeying the law	.64	-.31	-.13
Importance of obeying parents	.63	-.33	-.19
Importance of being neat and clean	.62	.01	-.13
Importance of being dependable	.62	.03	.15
Importance of having self-control	.60	.10	.13
Importance of facing life's problems calmly	.59	.04	.12
Importance of being happy	.47	.17	.16
Importance of being ambitious	.45	.13	.23
Number cigarettes smoked per day	.03	-.72	.29
Age began smoking regularly	.04	-.68	.26
Times questioned by police	.03	-.66	-.03
Ever arrested	.05	-.66	-.01
Age first smoked	-.02	-.62	.09
Ever had a date	.08	.58	.08
Who makes most decisions on choosing clothes	.06	.39	.12
Desires about schooling	.10	-.08	.88
What believe will happen about schooling	.10	-.10	.86
Eigenvalues	3.63	3.03	1.97
Percentage of variance accounted for	19.08	15.94	10.35

Table 14. Correlations among 12 criterion variables from psychological test records and demographic data documents

Variable	Variable										
	1	2	3	4	5	6	7	8	9	10	11
1 WISC Vocabulary raw score--											
2 WISC Block Design raw score----------	.53										
3 WRAT Reading raw score-----	.75	.50									
4 WRAT Arithmetic raw score--	.62	.50	.69								
5 Goodenough-Harris person drawing----------	.34	.39	.36	.38							
6 Goodenough-Harris self drawing----------	.28	.36	.31	.33	.78						
7 Reading test score---------	.12	.09	.15	.07	.04	.03					
8 Writing test score---------	.18	.11	.19	.13	.08	.06	.61				
9 Literacy score-------------	.35	.25	.38	.25	.13	.10	.50	.31			
10 Region of residence--------	-.14	-.08	-.15	-.06	-.03	-.02	.04	-.06	-.05		
11 Population of residence location----------	-.06	-.01	-.08	-	-.04	-.04	.07	.11	-.03	.21	
12 Family income-------------	.38	.34	.40	.32	.15	.10	.06	.09	.20	-.12	-.13

Table 15. Varimax rotated loadings of 12 criterion variables from test records and demographic data documents

Variable	Rotated factor			
	E-I	E-II	E-III	E-IV
WRAT Reading raw score	.84	.17	.17	-.08
WISC Vocabulary raw score	.84	.14	.14	-.06
WRAT Arithmetic raw score	.79	.05	.23	.07
WISC Block Design raw score	.67	.07	.30	.02
Family income	.61	.05	-.09	-.21
Reading test score	.01	.90	.01	.07
Writing test score	.06	.82	.05	.04
Literacy score	.34	.66	.01	-.08
Goodenough-Harris self drawing	.17	.02	.92	-.02
Goodenough-Harris person drawing	.25	.03	.90	-.02
Population of residence location	-.01	.08	-.05	.79
Region of residence	-.10	-.04	.01	.74
Eigenvalues	3.10	1.98	1.88	1.25
Percentage of variance accounted for	25.83	16.52	15.65	10.40

Table 16. Correlations[1] among 18 first-order criterion composites

Composite	A-I	A-II	A-III	A-IV	B-I	B-II	B-III	B-IV	C-I	C-II	C-III	D-I	D-II	D-III	E-I	E-II	E-III
A-I: Parental values																	
A-II: Good health history for youth	01																
A-III: Parental involvement in youth's good welfare	14	-															
A-IV: Youth's good adjustment history	13	22	19														
B-I: Keeping in good health	03	-03	56	06													
B-II: Self-perception of weight and eating habits	02	07	02	17	03												
B-III: Absence of exercise restriction	-	52	-09	13	-12	05											
B-IV: Diversion from health concerns	05	17	11	27	09	15	21										
C-I: Grade placement	02	05	19	16	17	02	-04	06									
C-II: School success and adjustment	06	05	31	28	17	04	-	12	33								
C-III: Special physical or academic resources	01	-03	17	08	10	-02	-04	02	22	20							
D-I: Youth's values	19	05	14	11	12	-04	02	03	14	14	13						
D-II: Social behavior	01	04	08	12	07	01	05	09	13	25	-	06					
D-III: Schooling	04	02	37	11	25	-01	-02	09	18	31	10	18	17				
E-I: WISC and WRAT	-02	02	47	19	38	01	-09	08	44	41	24	22	04	38			
E-II: Literacy	06	02	18	17	12	-03	-01	06	19	18	14	12	04	13	33		
E-III: Goodenough-Harris Drawing Test	-01	02	20	09	16	-02	-06	-01	26	16	14	13	-	10	45	19	
E-IV: Demographic data	02	-07	-15	-04	-12	02	-05	-11	-09	01	-05	06	05	-11	-14	02	-07

[1]Decimal points have been omitted.

Table 17. Varimax rotated loadings of 18 first-order criterion composites

First-order composite	Rotated factor (second-order composite)					
	I	II	III	IV	V	VI
A-I: Parental values	-.085	-.031	.075	-.090	.768	-.166
A-II: Good health history for youth	.042	.818	-.014	.009	.028	-.099
A-III: Parental involvement in youth's good welfare	.212	-.079	.763	.105	.184	-.115
A-IV: Youth's good adjustment history	.245	.238	.033	.170	.210	-.583
B-I: Keeping in good health	.109	-.138	.751	.041	.060	-.061
B-II: Self-perception of weight and eating habits	-.027	-.100	-.040	-.054	-.090	-.778
B-III: Absence of exercise restriction	-.075	.831	-.100	.033	.012	-.053
B-IV: Diversion from health concerns	-.043	.329	.197	.096	.017	-.524
C-I: Grade placement	.632	.020	.084	.244	-.086	-.074
C-II: School success and adjustment	.409	-	.165	.577	.070	-.182
C-III: Special physical or academic resources	.509	-.048	.024	.001	.047	-.002
D-I: Youth's values	.239	.102	.085	.113	.647	.165
D-II: Social behavior	-.072	.046	.017	.815	-.038	-.030
D-III: Schooling	.127	.045	.537	.428	.102	.089
E-I: WISC and WRAT	.694	-.018	.458	.120	.008	-.028
E-II: Literacy	.518	.014	.019	.022	.214	-.054
E-III: Goodenough-Harris Drawing Test	.670	.012	.118	-.123	-.049	.063
E-IV: Demographic data	-.025	-.259	-.509	.267	.304	-.004
Eigenvalues	2.243	1.648	2.021	1.420	1.269	1.362
Percentage of variance accounted for	12.465	9.159	11.230	7.893	7.053	7.568

Table 18. Means and standard deviations (SD) of 31 TAT variables used in analysis of the TAT structural and thematic data

Variable	Mean	SD
Card rejection	0.13	0.65
Nouns	50.63	38.04
Pronouns	52.25	38.90
Single verbs	59.66	41.54
Possessive adjectives	8.66	8.14
Adverbs	3.51	4.15
Pauses	0.80	1.93
Verbatim repetitions	5.25	8.12
Corrections	6.64	7.08
Dialogue	0.27	0.75
Situation complexity	11.97	2.47
Past reference	2.10	1.57
Present reference	4.85	0.64
Future reference	2.28	1.69
Level of interpretation	12.20	2.37
Outcome	2.63	1.75
Happy outcome	1.35	1.43
Unhappy outcome	0.47	0.76
Causally connected statements	2.01	1.62
Expression of feeling	2.82	1.51
Morbid mood quality	0.03	0.18
Bizarre theme	0.03	0.22
Egocentrism	0.19	0.56
Hostile antagonism	0.37	0.74
Kind, loving	0.88	1.05
Mean, rejecting	0.43	0.78
Happy, glad	0.32	0.65
Aggression	0.38	0.62
Death	0.28	0.55
Murder, killing	0.17	0.40
Goal-oriented behavior	1.90	1.52

Table 19. Correlations[1] among 31 TAT variables

	Variable	Variable									
		1	2	3	4	5	6	7	8	9	10
1	Card rejection										
2	Nouns	-16									
3	Pronouns	-16	86								
4	Single verbs	-17	94	95							
5	Possessive adjectives	-13	84	77	81						
6	Adverbs	-10	51	52	53	42					
7	Pauses	-01	05	03	-05	02	01				
8	Verbatim repetitions	-05	53	49	52	41	22	04			
9	Corrections	-07	69	66	68	60	41	03	60		
10	Dialogue	-05	42	44	45	37	22	-03	29	30	
11	Situation complexity	-52	39	43	41	35	22	01	20	28	13
12	Past reference	-15	40	41	40	39	22	-02	21	31	18
13	Present reference	-78	19	18	20	16	11	02	09	12	02
14	Future reference	-15	40	41	42	39	28	-01	19	28	21
15	Level of interpretation	-57	46	47	48	41	30	02	24	35	17
16	Outcome	-18	39	39	39	38	27	-03	22	30	20
17	Happy outcome	-11	32	34	33	29	24	-04	13	24	13
18	Unhappy outcome	-08	13	14	12	17	07	-06	10	10	07
19	Causally connected statements	-16	50	52	52	47	30	-	29	38	22
20	Expression of feeling	-23	37	41	42	39	35	03	23	30	16
21	Morbid mood quality	-02	12	14	14	12	03	-01	07	14	08
22	Bizarre theme	-01	13	17	17	10	03	-	13	17	16
23	Egocentrism	-05	13	16	16	12	08	11	06	09	12
24	Hostile antagonism	-06	28	29	30	31	21	-05	12	24	28
25	Kind, loving	-09	39	39	40	42	28	-01	24	33	16
26	Mean, rejecting	-06	29	34	32	29	13	-03	22	23	22
27	Happy, glad	-02	27	25	28	24	24	-	22	25	15
28	Aggression	-06	22	23	24	19	11	-	12	17	12
29	Death	-05	22	23	23	22	13	-01	15	19	09
30	Murder, killing	-02	16	16	15	14	07	-03	09	14	08
31	Goal-oriented behavior	-14	31	33	30	30	26	-01	12	25	20

[1] Decimal points have been omitted.

Table 19. Correlations[1] among 31 TAT variables—Con.

Variable																				
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
																				1
																				2
																				3
																				4
																				5
																				6
																				7
																				8
																				9
																				10
																				11
57																				12
56	19																			13
57	48	21																		14
72	46	61	42																	15
58	47	23	73	47																16
50	33	15	62	35	72															17
28	23	10	19	22	35	-														18
46	46	19	40	65	43	32	21													19
37	28	25	31	47	38	31	21	44												20
06	08	01	05	06	07	01	13	11	09											21
07	05	-	02	05	08	04	10	09	07	31										22
06	04	05	11	10	07	03	04	08	11	11	16									23
10	10	05	20	11	21	16	13	13	22	15	11	10								24
23	28	14	30	29	32	36	-	34	33	04	03	10	18							25
25	19	10	21	17	27	20	29	26	26	11	13	11	41	15						26
16	12	07	28	17	28	33	01	21	27	03	03	05	15	27	10					27
12	10	05	14	07	12	05	12	07	06	14	14	06	42	02	28	08				28
21	16	08	23	15	23	09	36	17	13	19	15	10	20	11	19	07	25			29
12	07	03	12	07	14	04	25	06	04	22	16	07	28	02	17	05	40	58		30
28	26	15	31	36	41	39	11	27	31	05	08	12	21	28	16	19	04	08	08	31

Table 20. Varimax rotated loadings of 31 TAT variables on four principal components

Variable	Rotated factor			
	I	II	III	IV
Single verbs	-.89	-.16	.20	-.23
Nouns	-.87	-.15	.18	-.22
Pronouns	-.85	-.16	.21	-.25
Possessive adjectives	-.78	-.11	.19	-.25
Corrections	-.76	-.06	.16	-.14
Verbatim repetitions	-.64	-.05	.12	-.03
Adverbs	-.55	-.06	.04	-.24
Dialogue	-.50	.04	.19	-.09
Card rejection	.04	.88	-.04	.01
Present reference	-.05	-.88	.03	-.07
Level of interpretation	-.32	-.73	.06	-.38
Situation complexity	-.16	-.66	.15	-.54
Murder, killing	.01	.01	.75	-.04
Death	-.05	-.07	.68	-.14
Aggression	-.12	.01	.62	-
Hostile antagonism	-.24	.08	.52	-.16
Unhappy outcome	.07	-.19	.51	-.22
Mean, rejecting	-.22	-.04	.46	-.22
Morbid mood quality	-.09	-.03	.45	.04
Bizarre theme	-.15	-	.39	.06
Outcome	-.15	-.17	.19	.84
Happy outcome	-.14	-.05	-.02	.82
Future reference	-.18	-.14	.14	.78
Past reference	-.26	-.26	.11	-.52
Goal-oriented behavior	-.23	-.10	.06	-.49
Causally connected statements	-.44	-.30	.09	-.42
Kind, loving	-.42	-.03	-.05	-.41
Happy, glad	-.29	.09	-.02	-.40
Expression of feeling	-.35	-.29	.09	-.38
Pauses[1]	-.12	-.09	-.08	.14
Egocentrism[1]	-.16	-.06	.19	-
Principal component solution:				
Eigenvalues	8.94	2.62	2.16	1.73
Percentage of variance accounted for	28.84	8.47	6.97	5.59
Varimax rotation solution:				
Eigenvalues	5.48	2.98	2.86	4.05
Percentage of variance accounted for	18.90	10.26	9.84	13.95

[1]These variables were omitted from further analyses because of low factor loadings and low intercorrelations with other TAT variables.

Table 21. Means and standard deviations (SD) of four TAT composite scores, by sex and age

Sex and age	Number of youths	TAT composite I: verbal competence		TAT composite II: conceptual maturity		TAT composite III: emotionality		TAT composite IV: narrative fluency	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Both sexes									
12 years	241	457.77	78.20	200.28	21.30	404.74	47.95	402.24	58.30
13 years	242	447.47	67.87	200.85	19.11	400.81	55.76	398.72	56.84
14 years	227	450.12	65.10	198.53	23.43	397.15	44.21	402.36	55.28
15 years	223	448.53	74.84	200.69	21.21	399.78	39.52	397.69	53.61
16 years	240	447.87	59.57	198.51	18.33	398.18	43.11	395.06	47.21
17 years	225	448.31	61.82	200.92	16.41	398.98	42.44	403.51	44.76
Male									
12 years	133	457.21	76.51	199.84	23.06	406.18	50.05	402.81	62.09
13 years	123	444.00	73.41	199.17	20.74	401.88	65.62	394.74	60.14
14 years	107	451.30	65.18	199.07	18.50	394.06	39.33	403.98	58.89
15 years	115	449.21	64.95	202.28	14.40	402.44	43.26	397.53	50.49
16 years	132	447.01	59.90	198.55	17.22	397.39	45.27	391.19	43.06
17 years	111	445.52	52.26	200.83	16.18	401.19	43.03	401.78	43.75
Female									
12 years	108	458.46	80.25	200.85	18.90	402.97	45.18	401.56	53.27
13 years	119	451.06	61.41	202.59	17.09	399.71	43.25	402.83	52.91
14 years	120	449.07	65.02	198.05	27.07	399.91	47.97	400.92	51.82
15 years	108	447.80	84.10	199.00	26.51	396.95	34.88	397.87	56.74
16 years	108	448.92	59.15	198.46	19.60	399.16	40.29	399.79	51.44
17 years	114	451.03	69.78	201.01	16.63	396.83	41.74	405.20	45.66

Table 22. Correlations of orthogonal TAT factors with TAT and criterion composites and with age, sex, and race

Variable	TAT orthogonal factor				Multiple correlation
	I	II	III	IV	
TAT composite I: verbal competence	.901	.143	-.211	.270	...
TAT composite II: conceptual maturity	.247	.662	-.099	.489	...
TAT composite III: emotionality	.175	.047	-.941	.149	...
TAT composite IV: narrative fluency	.372	.177	-.095	.860	...
Criterion composite I: intellectual and academic level	.087	.202	.065	.270	.354
Criterion composite II: illness history	-.026	.014	-.010	-.021	.038
Criterion composite III: parental care	.098	.108	.020	.195	.250
Criterion composite IV: maturity and school adjustment	.067	.094	.080	.124	.184
Criterion composite V: value orientations, parent and child	.007	.079	.019	.085	.118
Criterion composite VI: personal adjustment	-.001	.075	.040	.050	.102
Age	-.011	.066	.046	-.017	.099
Sex	.020	-.022	.030	.039	.057
Race	.022	-.014	-.082	-.191	.206

APPENDIX I

SCORING MANUAL FOR CYCLE III TAT DATA[b]

INTRODUCTION

Determining Story Length

Many of the items to be scored in accordance with this manual involve counting words, parts of speech, and other features of the story protocols in which accuracy and reliability of scoring are highly dependent on the precise identification of the story boundaries (beginning and end). The purpose of the foregoing study requires that only the spontaneous story produced by the respondent be used as a basis for scoring. Any statements made in response to questions by the examiner must therefore be excluded. Urging by the examiner is a delicate problem, and guides for evaluation of protocols in which the examiner urges the respondent are given below in paragraph (d) under the section *End of story*. The scorer should determine the story boundaries as the first step in the scoring of each story.

Instructions for Determining Story Boundaries

Throughout the following discussion, the letter E refers to the examiner and the letter R, to the respondent (the child or youth narrating the story).

Beginning of story.—Ordinarily, the beginning of a story may be recognized by application of the following rules:

(a) R narrates a story or comments about the card after E has asked him to "make up a story." The beginning of the story may be preceded by conversation between E and R.

(b) The story is not a specific reply to a specific question, such as "What do you see here?" followed by "I see a boy."

(c) If R makes a spontaneous remark, such as "That boy is sad," and no further story is produced, either because of inability of R to elaborate or because of the intervention of questions by E, accept the remark as the entire story. In the event that no story at all is given, even if R answers specific questions by E, score the response as a card rejection, item 1. In all cases of rejection of a card, no further scoring of that card for the particular R will be made under this manual.

Mark the story beginning on the protocol with a capital letter B (beginning) or score card rejection.

End of story.—Use the following rules to establish the end of a story:

(a) R indicates that the story is ended by a remark such as "That is all," "That is all I can think of," or the like. Such remarks establish the end of a story and are included as part of the story.

(b) R stops and E accepts the story as completed. This usually is indicated by no further exchange for the particular card but may be indicated by a remark such as "That's fine."

(c) E asks a question calling for interpretation which would thereby introduce content not spontaneously contributed by R, thus ending the spontaneous story. Questions such as "How does he feel?" "What will happen next?" and the like are in this category. In the event of doubt, scorers will obtain an interpretation about any specific questions encountered.

[b] This manual is abstracted from an earlier version[1] prepared for Cycle II TAT data.

(d) The following types of questions and comments by E during a story are considered acceptable questions or promptings and do not terminate a story:

"Uh huh," "Go on," "Yes."

Repetition of R's statement (frequently done when R's speech is inaudible or unclear, but also for encouragement).

Mark the story ending on the protocol with a capital letter E (end).

Inquiry.—The remainder of the protocol, following E, will be referred to as the "inquiry." Unless otherwise specifically stated in instructions for particular items, always score items only on the story content within the boundaries defined by B and E. Reference is made to other parts of the protocol for certain items, and in those cases the specific item instructions should be followed.

SCORING INSTRUCTIONS

The definition of most items includes examples to illustrate correct scoring of common and problem occurrences of that item in the population of stories to be scored.

1. CARD REJECTION. Score 1 for failure or refusal of R to produce a story in response to a card. Otherwise score 0.

2. REACTION TIME (RT) LATENCY (time latency between presentation of card and response). Record in seconds, as reported by E at end of story.

3. TOTAL TIME (length of story). Record in seconds, as reported by E at end of story.

4. NUMBER OF WORDS. Count number of words in story from point identified as *beginning* (B) to point identified as *end* (E). Do not count E's questions, interruptions, interpolated comments, or repetitions of words or phrases. Count auxiliary words separately (was playing is counted as two words); contractions are counted as separate words (isn't is counted as though it were is not); titles or names are counted as words (Miss Mary Smith is counted as three words); and hyphenated words are counted as two words. In transcribing the protocols from tape, certain conventions were adopted. These conventions include the insertion in the transcript of explanatory comments (in capital letters) such as MUMBLES, LAUGHS, PAUSES, and the like. Do not include these insertions in the word count. Words enclosed in parentheses are also not to be included in any of the count items.

In cases of repetitions (immediate reuse of the same word or groups of words) or corrections, do not include the repeated or corrected portions in the word count or in the count of grammatical forms.

(5.-11. PARTS OF SPEECH.) Parts of speech are defined in this manual in accordance with J. N. Hook and E. G. Mathews, *Modern American Grammar and Usage*, New York: The Ronald Press Company, 1956. These definitions must be applied to the words as they appear in the story context. For all subsequent items, count only words included in the word count in item 4.

5. NUMBER OF NOUNS (do not include words counted in item 9)

6. NUMBER OF PRONOUNS (do not include words counted in item 9)

(7.-8. VERBS.) A verb is a word or group of words that expresses action, being, or state of being.

Verbals (infinitives, participles, and gerunds) are scored as verbs when used as such. The participle is a verbal used as an adjective. Gerunds are verbals used as nouns. Generally, infinitives are scored as verbs depending on their function in the sentence. For example, in "To win is not easy," the phrase to win is used as a noun and the subject of the sentence. Therefore it is not scored as a verb but as a noun. However, in "He likes to win," although used as a noun, the infinitive to win is the object of the verb likes and, the phrase "likes to win" is therefore counted as a complex verb.

7. NUMBER OF SINGLE VERBS. Score as a single verb any verb, with or without auxiliary words, that is the only verb involved with a particular subject. Single verbs may have modifiers expressing tense or mood, such as is eating, is

going to play, was supposed to play, had been studying, is about to leave, didn't like. Sometimes the word going is used as part of a single verb, as in the second example above, to express developing (future) action. However, this usage must be distinguished from that in which going is a verb in its own right, as in going to school. In the latter sense, going may also be coupled with an infinitive (going to school to play) and would then be a complex verb (item 8). Examples of single verbs are:

"He wants him to win." The subject he involves only the verb wants; him is the subject of the infinitive to win. This sentence is therefore scored as including two single verbs.

"The boy ran and the girl walked." Score as two single verbs.

"There's somebody playing a violin." The word there is classed as an expletive and has no function except to start the sentence. The subject somebody involves the contracted verb is and the predicate nominative playing. Score as a single verb.

8. NUMBER OF COMPLEX VERBS. Score verbs coupled with infinitives ("He wants to play") and verbs coupled with verbal phrases ("He is thinking about playing") as complex verbs. Disregard the number of couplings. Thus, "He wants to go to play," and "He wants to go," would both be scored as complex verbs.

9. NUMBER OF POSSESSIVE ADJECTIVES. Possessive adjectives are formed from nouns and pronouns which are adjectival in function and denote possession. Their primary purpose is to limit the application of the noun or pronoun (his mother, my book, boy's violin, father's gun).

10. OTHER ADJECTIVES. Other adjectives include the number of single or two-word (hyphenated) descriptive adjectives which suggest physical or other characteristics of a noun or express a judgment or opinion related to the noun. These include words of identification (mountain lion, Harvard student) and verbals (infinitives, gerunds, or participles) used as adjectives, which are always descriptive (living room, running water, dying soldier). Count hyphenated descriptive adjectives as one adjective. Do not include articles, demonstratives, possessives, relatives, interrogatives, indefinites, numbers, exclamatory words, or words of location in this category.

Include the number of comparative adjectives, whether used correctly or not. One-syllable adjectives normally form the comparative by the addition of -er or less (taller, less tall). Two-syllable adjectives are erratic in forming the comparative; those formed either by adding -er or by employing more should be counted (happier, more happy, funnier, more funny, famouser, more famous). Two-word comparatives are counted as single adjectives.

Include the number of superlative adjectives, whether used correctly or not. These are formed by adding the suffix -est or by using most (prettiest, happiest, most funny). Count each as a single adjective.

11. NUMBER OF ADVERBS. Count the number of one-word adverbs (not adverbial phrases) ending in -ly or their equivalents (beautifully, vigorously, thickly, justly). Equivalent adverbs include those which have two forms. One form is illustrated by the following adverb equivalents that do not end in -ly: cheap, real, close, late, loud, slow, thick, and wrong. The second form includes any that may be given by the youth that are grammatically incorrect. Adverbs often answer the question "How?" Adverbs function as modifiers of verbs, adjectives, adverbs, prepositional phrases, adjective clauses, or sentences. An example of each follows:

Modifier of verb: "The boy ran swiftly down the street" (Score only swiftly; do not score the adverbial phrase down the street.)

Modifier of adjective: "They lived in a real big house." (Real is considered to be an -ly equivalent.)

Modifier of adverb: "He ran very slow." (Score as one adverb. The adverb very modifies the adverb slow but is not scored.)

Modifier of phrase: "Early in the morning he went to school."

Modifier of clause: "The result is nearly what was expected."

Modifier of a sentence: "Obviously, the boy wanted to play the violin."

Do not score any of the following special functions of adverbs in this category: interrogative adverbs (how, when, why, where), exclamatory adverbs, transitional adverbs, relative adverbs, correlative adverbs, the expletive there, or independent adverbs (yes, no, and a few other words which stand alone as answers to questions). Do not score adverbs which do not take an -ly ending (down, far, how, much, never, not, once, out, since, soon, then, too, up, well, where, why, fast, or very).

A good test for an adverb is to insert a form of be, seem, or become in place of the verb. If these words make sense, the word used should be counted as an adjective; otherwise, the word is an adverb.

12. PAUSES. A pause is indicated by the typist by a dash (—) or a statement (Pause). Count pauses only within the story boundaries. Periods (. . .) do not indicate a pause.

13. VERBATIM REPETITIONS. Count all occurrences within the story of immediate reuse of the same word or group of words. Do not count repetitions within interpolated comments. In case of repetitions do not include repeated grammatical forms in the counts of grammatical items. For example:

"He took his horse out there with a —with a plow." (A repetition is often preceded by a pause.)

"Once there was a—Once there was a man who lived in a—lived in a house." (two repetitions)

14. CORRECTIONS. Count the number of instances in which corrections occur in the story, not including interpolated comments. Corrections may be regarded as a form of self-monitoring of speech. Whenever R corrects or changes a statement to make it clearer, more exact, or to alter the meaning, count the change as a correction. Do not count repetitions as corrections. The following are examples of corrections that should be scored:

"It was a . . . to him it was . . ."

"She had a cat, I mean a dog."

"The woman was going to move into the house. Well, no. She didn't want to move in the house."

15. DIALOGUE. Score 1 when the form of narration involves statements by characters that should be placed in quotations. Dialogue may involve occasional quotable statements or conversations between two or more characters. In some cases, the second character may be inferred and does not participate in the conversation. If not present, score 0.

16. SITUATION COMPLEXITY. The complexity of the situation developed in the story should be scored according to the following classification:

(1) *No situation.* Use this category when there is no discernible action situation. This occurs when R enumerates persons or objects in the picture (boy, horse, tree) or describes a scene (in present or historical perspective without any action). If there is no situation, score 1.

"That is a farm scene."

"This is a man."

These people just came from Boston . . ."

(2) *Simple action situation.* For the purpose of this manual, a simple action situation involves a single action in progress. Dramatically, it is a simple scene in a play. The action, occurrence, or event transpires as the scene unfolds and does not involve reference to antecedent or consequent events or explanation of plot beyond the action taking place. For a simple action situation, score 2. This refers to stories in which there is at least some action (plowing, thinking, wanting, being sad). Many stories contain events before or after the main action of the story which are not integral parts. These antecedent and consequent events which are to some degree irrelevant to the main action of the story do not change the level of the story.

"These people came from England. They are farming. . ."

The first sentence, though antecedent to the main body of the action of the story, serves as introduction or explanation of the present story, but is not part of the story itself.

"He is thinking about playing the violin. When he grows up he will become a famous violinist."

The second sentence is an "irrelevant consequence."

(3) ***Complex action situation.*** A situation is considered complex if the scene of action shifts during the story in time or place, or if the plot involves activity of greater complexity than the limited action situation described in (2). The presence of what might be called "relevant antecedent" or "relevant consequence" raises the complexity to this level.

"A woman hears a noise and she goes outside and finds a man."

The main action shifts in locale. A similar shift in time of the main action would also constitute a complex action situation. For a complex action situation, score 3.

(17.-19. TEMPORAL REFERENCE.) These items have to do with references to time in the stories. For items 17 and 19, any reference to the past or future, even if expressed in the present, is scored. However, the use of past tense or future tense verbs does not necessarily constitute past or future reference. The expression "tomorrow she is going to leave" would constitute future reference.

Please note, however, that the following example is related to the preceding item, situation complexity.

"Yesterday she was riding a train home. She is now home wishing she were back at school."

The situation is complex because the scene of action shifted in time (from riding in the past to now back at home). This is scored as past reference. However, in:

"The girl returned yesterday and is now home. She is watching her brother."

there is still past reference, but there is no shift of relevant action.

In other words, past and future reference in and of themselves do not constitute a complex action situation.

17. PAST REFERENCE. Score this item for any reference to things, events, or situations which have taken place in the past and may be considered as antecedent to the present action of the story. The reference may be to either the immediate or remote past but should be antecedent to the present action. If a past reference occurs, score 1; otherwise, score 0.

"His father was a musician."

"The boy broke his old violin and is happy to receive a new one."

18. PRESENT REFERENCE. Score if the story includes any activity or behavior that is in the process of occurring within the story. If a present reference occurs, score 1; otherwise, score 0.

"He's thinking about his violin that he got for his birthday."

"He wants to be a violinist."

19. FUTURE REFERENCE. Future reference is scored if any reference is made to things, events, or situations which take place in the future, that is, after the time of the scene pictured on the card as described in the story. Reference may be to immediate or remote future but must be to definite things, events, or situations. In some instances, outcome, item 21, and this item will be scored alike for the same material. However, a future event may occur when there is no outcome to the story and vice versa. If a future reference occurs, score 1; otherwise, score 0.

"She wants to become a great violinist."

"Next time it happens they will remember."

"It is 20 years later and the boy, now a man, still can't play the violin."

(20.-26. STORY INTERPRETATION.) These items relate to the interpretation of the scenes depicted in the story.

20. LEVEL OF INTERPRETATION. Classify each story as to the level of interpretation according to the following criteria:

(1) ***Enumeration.*** Score 1 if R only enumerates the stimuli on the card (boy, table, thing).

(2) ***Description.*** Score 2 if R describes the scene on the card but provides no interpretations as defined below in (3).

"There is a young boy sitting at a table with a violin. The boy is sad."

(3) ***Interpretations.*** Score 3 if R interprets the character's feelings or behavior, whether or not the interpretation implies a causal or purposeful relationship.

"He feels sad because his mother died."

"He wants to learn to play so he can become a great musician."

21. OUTCOME: If there is any reference to an ending or outcome to the events or situations which take place in the story, whether or not as a consequence of the activity or behavior that is in the process of occurring, score 1; otherwise, score 0.

The following conditions are appropriate for scoring the presence of outcome: The ending or outcome indicates that the purpose of goal behavior is satisfied and no barrier or obstacle interposed the attainment of the goal. The purpose of the goal behavior is satisfied despite a barrier or difficulty. Goal attainment was prevented by an insuperable barrier or difficulty. Failure was the result of lack of capacity of the individual (physical, mental, social, financial, or other inability to cope).

"Then she just found it, and she wondered who owned it."

"He's plowing a garden. He will spend much time thinking whether he should make it bigger or just leave it like it was."

22. HAPPY OUTCOME. Score 0 for no outcome or neutral outcome. Score 1 for happy ending or optimistic outcome.

"The boxer was hurt and had to stay in the hospital. Then this thing healed up and he got to box again . . .He won the fight. He won the second fight. And then he was champ again."

". . . the boy learned how to play the violin when he grew up to become a great musician."

23. UNHAPPY OUTCOME. Score 0 for no outcome or neutral outcome. Score 1 for unhappy ending or pessimistic outcome.

" . . .he broke all the strings on his violin and threw it out the window."

" . . .it was something in his stomach and they had to operate and cut it open. The boy was worried. Finally, his father dies."

24. CAUSALLY CONNECTED STATEMENTS. Causally connected statements involve a related action (feeling, behavior, etc.) which occurs in the same or adjacent sentences. The reason for such action should be given or inferred, and the consequences of the action should be expressed. Many times, causally connected statements are indicated by the presence of such words and phrases as because, as, as a result, on account of, due to, since. If causally connected statements occur, score 1; otherwise, score 0.

"Her father brought home a birthday cake. That is why the mother wanted her to come home."

"The woman promised to pay him 50 cents an hour because he needed the money so bad."

"The horse broke his leg, so the man shot him."

"He feels sad because his mother dies."

"He had an operation since his leg had an infection."

"One quit working as it was closing time."

25. PURPOSEFULLY CONNECTED STATEMENTS. Purposefully connected statements involve a related action (feeling, behavior, etc.) which occurs in the same or adjacent sentences. The reason for such action is the actor's reason, and a goal-oriented activity is implied or occurs.

One way of testing for purposeful connections is to replace the connections with the phrase in order or in order to.

"This lady was getting ready for bed. She heard a noise in the next room. So she looked out the door to see what it was."

"She hurries into the house to do the things she should have already done." (In order can be inserted, as in the next example.)

"She hurries into the house (in order) to do the things she should have already done."

Note that the meaning is identical in the last two examples.

26. CONDITIONALLY CONNECTED STATEMENTS. These involve statements wherein the conditions for some action or event are specified.

"If the boy comes home, his mother will spank him."

"Should he drop the violin, it will break."

"If it rains, then she'll get her books wet."

Sentences involving when and as soon as are not scored as conditionally connected.

27. EXPRESSION OF FEELING. If there is any indication of an expression of feeling or emotion on the part of any of the characters in the story, score 1. "Wishing" and "wanting" may be considered as "feeling" for the scoring of this item. Otherwise, score 0.

"...he doesn't know how to play it and he's sad."

"He wants to learn to play it."

28. ESCAPE. Escape is defined as an action in a story in which any character expresses thought or action which has the effect of avoiding persons or situations by running away, otherwise escaping, or attempting to escape. Score positive instances of escape 1; absence of escape, 0.

Scoring rule. The idea of escaping must be implicit in the story; the fact that an unpleasant or aversive situation exists is not justification for scoring this item. The following examples would be scored here.

"Then she's going to go and run away."

"At the ending, he escaped from the enemies and he went home safely."

"Tom started to watch but then he couldn't stand it any longer." (This represents a borderline case which may be scored here.)

"The fox beat him to his hole and chased the rabbit into the forest." (Note: the rabbit escaped.)

29. MORBID MOOD QUALITY. A story theme is considered morbid if it expresses ideas of a depressed, extremely gloomy, gruesome nature, or preoccupation with disease or death. Statements involving cutting out someone's heart, internal organs falling out, and gruesome accidental death or murder are examples of morbid quality. Score 1 when morbid quality is present; not present, 0.

A theme may be bizarre but not morbid, morbid but not bizarre, both, or neither. These two examples should be scored as morbid mood quality:

"The car smashed him. He didn't wake up the next morning. He's dead. He didn't have enough time to disintegrate. When he disintegrated, he looked awful bad. He didn't like to pass on, but he did."

"The girl fell all the way down and she was dead. The mother cried, and the father cried. They buried her. Then there wasn't any girl for her mother, and her mother was sad and started bawling all night and all day."

Preoccupation with death refers to death abstractly or to one's own death. Preoccupation with killing someone else, threats to kill, or with death occurring through violence is not scored here unless accompanied by morbid mood quality. If only murder or threat of killing is included, the response should be scored under item 40.

30. BIZARRE THEME. A theme may be morbid but not bizarre, bizarre but not morbid, both, or neither. Bizarre themes lack orientation to reality, suggest distorted, nonlogical thought processes, or represent socially deviant behavior (as cannibalism) to an extreme degree. Crimes of murder or robbery are not bizarre in and of

themselves, nor are humanlike behavior of animals (Mickey Mouse) or "fairytale" content. Science fiction content (man from outer space) is not necessarily scored as bizarre. Score bizarre thematic content 1 and absence of bizarre content, 0.

"Well, her face was real pretty. Then when she looked out it turned to bricks. Turned into bricks. She couldn't move her eyes or mouth."

"He's cutting him up to eat him—to eat him for dinner."

"They would cut him up and eat him and then would save the rest for the others eating dinner."

"The alligators will climb up in your hai and you'll have alligator hair forever.

31. EGOCENTRISM. Egocentrism is considered present if the theme is focused on the feelings, thoughts, or actions of a single character without evidence of any awareness of the reactions or feelings of other persons. Score presence of egocentrism 1; absence, 0.

In card 1, egocentrism is scored if the theme is concerned only with the boy and his feelings or actions. In card 2, egocentrism is scored if the girl with the books is the focal character, the other characters are ignored or handled at a very superficial level of description, and the focal character is given dynamic attributes (not merely described). In card 5, score egocentrism if the theme is concerned only with the woman and her feelings or actions, or if someone appears as a threat to the focal character but is treated as an object of fear rather than a person. For card 8, score egocentrism if the boy in the foreground is dreaming or fantasizing and the story is focused on his thoughts or dreams; or if the story is focused on the boy to the exclusion of the operation scene character.

32. FEAR. Look for any expression of fear, dread, or phobia; mild states of worry or anxiety are excluded from this definition. Indications of fear include reactions to threat involving screaming, being scared, shaking with fear, or being terrorized. Phobia indications include overt or implied fears or excessive concern with specific objects, such as snakes, alligators, rats, ghosts, the dark, storms, etc. Score presence of fear 1; absence of fear, 0.

"It was chillers from science fiction and she was scared."

"He starts wiggling around and screaming."

"The dog started barking at her. She was almost ready to scream. She went out of the house, shaking."

33. HOSTILE ANTAGONISM. Antagonism is defined as intense conflict or negative affective relations between story characters. Instances of resentment, rejection, willful disobedience, expression of an adverse emotional relationship, unprovoked aggressive acts, and intense rivalry for the affections of another person are included in this definition,. Score 1 for the presence of hostile antagonism and 0 for its absence.

"There were these little children and her mother—their grandmother—couldn't put up with them."

"And afterwards I didn't feel so good because she hit me."

"She was mad because her father was just standing there working and paying no attention to her."

"His father had heard that he went so his father went up there and got him and brought him home. One night his father killed him."

"So one time his father got married. One time the wife didn't like him—her husband. She didn't like him so that she cut him."

"So their mother came in and they started fighting."

(34. 40. ATTRIBUTES OF CHARACTERS.) Each card is to be scored separately for the presence or absence of each of the traits, states, or conditions of characters, as defined below. Score 1 if the characteristic is present; otherwise, score 0:

The traits or characteristics specified in 34 through 40 must be attributable to a character and must be spelled out; the manifestations

of behavior which merely suggest that the person may possess such traits is not sufficient evidence to score these items.

34. KIND, LOVING, REWARDING. A character helps, teaches, loves, rewards, shows kindness, or other positive affect toward another character.

"He must be at Joey's house. If he is there, I will give him an apple when he comes home."

"He always dreamed of being a doctor and wanted to help people a lot."

35. MEAN, REJECTING, PUNISHING. A character refuses to help or teach, neglects, rejects, hurts, punishes, or shows negative affect toward another character. If a child merits disciplinary action by the parent and is punished for a misdeed, do *not* score as punishing. Examples to be scored follow:

"Her mother makes this man work real hard because he hurt his . . . her mother's feelings."

"This boy was always mean to other boys."

36. HAPPY, GLAD. The story states that any character is happy, glad, cheerful, thankful, laughing, or smiling.

"He took them and learned how to play. Then he was happy."

"Tom felt real good and thanked his father and the other man."

"When I got home, I was happy that I had a fun time at the beach."

37. AGGRESSION. Score hostile or threatening action by any character that causes fear or flight or brings the other person into forceful contact. Include acts of displaced aggression (e.g., the boy breaking the violin because he does not want to practice).

"Then two crooks got him tied up."

". . . some bad man he tells him, 'Come on and have some candy.' Then the little boy go too . . . and the guy grabs him and he strangles him."

38. ILLNESS, INJURY. Score instances in which any character is crippled, ill, sick, injured, hospitalized, undergoing an operation, or in an accident.

"She thought that her mother had a sickness that was going around and she was very painful looking."

'So the others had a piece and they were poisoned."

". . . this boy by the name of Tom was watching his father and another man—operate on—his friend."

"She steps up to the side and tries to get the dog out of a fight. She gets hurt."

39. DEATH. Score if any character dies or may be presumed to be dying, whether the cause of death is violent or nonviolent. If murder or killing is scored, death will also be scored.

". . . the letter had said that her mother had died, so her father came out to live with her . . ."

"He didn't wake up the next morning. He's dead."

40. MURDER, KILLING. Score if any character murders or is murdered, kills or is killed, either intentionally or accidentally, or is in danger of dying as a result of violence. Do not score unless a death occurs or is occurring. (Unsuccessful attempts are scored under item 37, Aggression.)

"He was asleep, and they cut him and killed him."

"Two men always took after him and started killing everybody."

41. GOAL-ORIENTED BEHAVIOR. Goal-oriented behavior is defined as involving some expressed plan, intention, or action of one or more characters to attain a goal. It may generally be observed when the reaction of the character(s) to the environmental press determining the story theme takes the form of goal-oriented plans, intentions, or overt behavior. Score 0 if there is no goal. Score 1 if there is one or more goals.

The minimal type of action between the character and the environmental press is not scored as goal-oriented behavior. For example, "The boy is looking at the violin" does not evidence such behavior. However, "The boy is looking at the violin thinking if he can play" is goal-oriented behavior since it involves a plan, intention, desire, or action.

"The girl has books in her arms," is not scored, but

"The girl wants to go to school," would be scored.

———○○○———

APPENDIX II
QUESTIONS FROM CYCLE III HEALTH EXAMINATION SURVEY FORMS USED IN THIS STUDY

PHS 4733-4 (Page 1)
REV. 3/66

FORM APPROVED
BUDGET BUREAU NO. 68-R1700

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DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL HEALTH SURVEY

MEDICAL HISTORY OF YOUTH
Parent's Questionnaire

Sample number

NAME OF CHILD *(Last, First, Middle)*	SEGMENT	SERIAL	COL. NO.

NOTE: Please answer the questions by checking the correct boxes or by filling in the blanks, as required. If a question is unclear leave the answer blank and draw a line around the question. A representative of the Public Health Service will collect your filled-in questionnaire in a few days and she will help you answer the unclear questions. Thank you for your cooperation.

1. SEX	2. AGE	3. DATE OF BIRTH *(Month, Day, Year)*
1 ☐ Male 2 ☐ Female		

4. PLACE OF BIRTH *(City or Town, State)* _____

5. Was this youth born in a hospital? 1 ☐ Yes 2 ☐ No 3 ☐ Don't know

8. Was there anything wrong with this child as a baby *(that is, before he or she was one year old)*? 1 ☐ Yes 2 ☐ No 3 ☐ Don't know

IF YES:
a. What was the matter? _____

b. Did you see a doctor about it? 1 ☐ Yes 2 ☐ No 3 ☐ Don't know

9. Has there been any serious health problem since he or she was one year old?

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

IF YES: What and when?

_____

10. Is there anything about his or her health that worries you now?

1 ☐ Yes 2 ☐ No

IF YES: What is it? _____

_____

11. How would you describe his or her present health?

1 ☐ Poor 2 ☐ Fair 3 ☐ Good 4 ☐ Very Good 5 ☐ Excellent

IF POOR OR FAIR: What is the matter? _____

12. Does he or she now use any medicine regularly *(not counting vitamins)*?

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

IF YES:

a. What is the name of the medicine?_____ 2 ☐ Don't know

b. What is it for?_____ 2 ☐ Don't know

c. Did a doctor say he or she should use it?

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

d. How long has he or she been using it? _____

---

16. Which of the following operations or surgery has he or she had? *(Check all that apply.)*

1 ☐ Tonsils and/or adenoids taken out

2 ☐ Appendix taken out

3 ☐ Hernia *(Rupture)*

4 ☐ Other; what? _____

9 ☐ None

---

17. Has he or she ever been in a hospital *(overnight or longer)*?

1 ☐ Yes 2 ☐ No (IF NO, SKIP TO QUESTION 18)

IF YES:

a. What was the longest time he or she ever spent in a hospital?

1 ☐ A night to a week

2 ☐ Over one week but less than six months

3 ☐ Six months or longer

b. How old was he or she at that time?_____ years

c. Why was he or she there? _____

d. Did an adult family member spend the night with him (her) in the hospital most of the time

1 ☐ Yes 2 ☐ No

---

18. Has he or she ever had (CHECK YES OR NO IN EVERY LINE).

a. Measles	1 ☐ Yes	2 ☐ No
b. Mumps	1 ☐ Yes	2 ☐ No
c. Chickenpox	1 ☐ Yes	2 ☐ No
d. Whooping cough	1 ☐ Yes	2 ☐ No
e. Scarlet fever	1 ☐ Yes	2 ☐ No
f. Asthma	1 ☐ Yes	2 ☐ No
g. Hay fever	1 ☐ Yes	2 ☐ No
h. Other allergies	1 ☐ Yes	2 ☐ No
i. Kidney trouble	1 ☐ Yes	2 ☐ No
j. Heart murmur or anything else wrong with the heart	1 ☐ Yes	2 ☐ No
k. Fit, convulsion, or seizure	1 ☐ Yes	2 ☐ No
l. Pneumonia	1 ☐ Yes	2 ☐ No

19. Below is a list of other diseases. Please read through it carefully and check the YES box if he or she ever had any of the following:

(a) Diabetes or sugar diabetes
(b) Rheumatic fever
(c) Polio (Infantile Paralysis)
(d) Epilepsy
(e) Chorea or St. Vitus dance
(f) Diphtheria
(g) Tuberculosis (T.B.)
(h) Cerebral palsy
(i) Meningitis or sleeping sickness

1 ☐ Yes 2 ☐ None of these

IF YES: Which? _____

_____

33. Does he or she have a limp or other trouble walking?

1 ☐ Yes 2 ☐ No

34. Is there anything that prevents complete use of his (her) legs?

1 ☐ Yes 2 ☐ No

IF YES: What is it? _____

_____

_____

36. Is he or she now prevented for reasons of health from taking part in hard exercise or play?

1 ☐ Yes 8 ☐ No (IF NO, GO ON TO QUESTION 37)

IF YES:

a. What are the reasons? _____

_____

b. Did the doctor advise this?

1 ☐ Yes 2 ☐ No

37. Was he or she ever prevented for reasons of health from taking part in hard exercise or play?

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

38. Have his (her) teeth been straightened or have bands been put on them?

1 ☐ Yes 2 ☐ No

IF NO:

a. Do you think they need straightening?

1 ☐ Yes 2 ☐ No

b. Has a dentist said they need straightening?

1 ☐ Yes 2 ☐ No

41. As far as mental development is concerned, is he or she coming along:

1 ☐ Too slowly 2 ☐ At about the right rate 3 ☐ Too fast

42. How often has he or she stayed overnight at a friend's house?

1 ☐ Never 2 ☐ Only once or twice 3 ☐ Quite a few times

11

44. Did he or she go to kindergarten?

1 ☐ Yes 2 ☐ No

IF YES: Was it: 1 ☐ Compulsory 2 ☐ Voluntary

---

46. What was his or her reaction to school during the first few weeks of 1st grade?

1 ☐ Was quite happy

2 ☐ Was a little upset

3 ☐ Was quite upset

4 ☐ Was so upset, he or she got sick

5 ☐ I don't remember or don't know

---

47. In general, how easily does he or she make friends?

1 ☐ Easily

2 ☐ Has a little trouble

3 ☐ Has a lot of trouble

---

48. How many of his or her friends do you know well?

1 ☐ Most of them

2 ☐ Half or less

3 ☐ Almost none

---

49. How much trouble was he or she to bring up?

1 ☐ None

2 ☐ Just a little

3 ☐ Some

4 ☐ A lot

5 ☐ Don't know

---

50. Some people are calm, others are nervous *(tense, high-strung)*. Which describes him or her best?

1 ☐ Not nervous at all

2 ☐ Somewhat nervous

3 ☐ Very nervous

---

51. Has this youth ever been to a mental hospital or guidance clinic?

1 ☐ Yes, within past year 3 ☐ No

2 ☐ Yes, but not within past year 4 ☐ Don't know

---

52. Has he (she) ever seen a psychiatrist, or a psychologist, or have you talked to one about him (her)?

1 ☐ Yes, within past year 3 ☐ No

2 ☐ Yes, but not within past year 4 ☐ Don't know

---

53. Would you say he or she eats:

1 ☐ Too much

2 ☐ About the right amount

3 ☐ Too little

---

58. Looking ahead, what would you like him or her to do about school? *(Check one only.)*

1 ☐ Quit school as soon as possible

2 ☐ Finish high school

58. Continued

3 ☐ Get some college or other training after high school

4 ☐ Finish college and get a college degree

5 ☐ Finish college and take further training *(medical, law, or other professional school, etc.)*

59. What do you think will happen, as far as school goes? *(Check one only.)*

1 ☐ Quit school as soon as possible

2 ☐ Finish high school

3 ☐ Get some college or other training after high school

4 ☐ Finish college and get a college degree

5 ☐ Finish college and take further training *(medical, law, or other professional school, etc.)*

60. How important do you think it is for a young person to have each of the qualities or characteristics listed below? *(Put one check mark in each row.)*

	Extremely Important (1)	Important (2)	Slightly Important (3)	Unimportant (4)
a. To be neat and clean				
b. To be able to defend oneself				
c. To have self-control				
d. To be happy				
e. To obey one's parents				
f. To be dependable				
g. To be considerate of others				
h. To face life's problems calmly				
i. To obey the law				
j. To be ambitious				
k. To know how to keep in good health				

62. Some people when they are sick talk as if they are sicker than they really are, that is, they exaggerate a little. How often does he or she do this when he is sick?

1 ☐ Pretty often

2 ☐ Not very often

3 ☐ Almost never

4 ☐ Never

64. When did a doctor last see him (her) for a check-up *(routine examination)*?

1 ☐ In the last year
2 ☐ One-two years ago
3 ☐ Over two years ago
4 ☐ Never
5 ☐ Don't remember or don't know

---

65. When did a doctor last see him (her) for treatment?

1 ☐ In the last year
2 ☐ One-two years ago
3 ☐ Over two years ago
4 ☐ Never
5 ☐ Don't remember or don't know

---

67. When did he (she) last see a dentist for a check-up *(routine examination)*?

1 ☐ In the last year
2 ☐ One-two years ago
3 ☐ Over two years ago
4 ☐ Never
5 ☐ Don't remember or don't know

---

68. When did he (she) last see a dentist for treatment?

1 ☐ In the last year
2 ☐ One-two years ago
3 ☐ Over two years ago
4 ☐ Never
5 ☐ Don't remember or don't know

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FORM APPROVED
BUDGET BUREAU NO. 68-R620.64

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DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL HEALTH SURVEY

HES

Sample No.

HEALTH HABITS AND HISTORY – Youth

Name (Last, First, Middle)	SEGMENT	SERIAL	COL. NO.

INSTRUCTIONS: On the following pages you will find a set of questions dealing with your health. Since every person is different, there are no "standard" answers to the questions; just answer them as fully and honestly as you can. Your answers will be kept confidential. Do your best to pick the most likely answer from among the choices given. Only if you really don't know the answer check "Don't know."

1. SEX	2. AGE	3. DATE OF BIRTH (*Month, Day, Year*)
1 ☐ Male 2 ☐ Female		

4. How would you describe your present health?
   1 ☐ Poor 2 ☐ Fair 3 ☐ Good 4 ☐ Very good 5 ☐ Excellent
   a. IF POOR OR FAIR: What is wrong? _____

5. Do you have any problems you might like to talk over with a doctor?
   1 ☐ Yes 2 ☐ No
   a. IF YES: What are they? _____

6. Do you now use any medicine regularly, not counting vitamins?
   1 ☐ Yes 2 ☐ No 3 ☐ Don't know
   IF YES:
   a. What is its name? _____ ☐ Don't know
   b. What is it for? _____ ☐ Don't know
   c. Did a doctor say you should use it?
      1 ☐ Yes 2 ☐ No
   d. How long have you been using it? _____

10. Have you ever stayed in a hospital (*overnight or longer*)?
    1 ☐ Yes, just once 3 ☐ No
    2 ☐ Yes, more than once 4 ☐ Don't know
    a. IF YES: What was the longest time you ever spent in a hospital, and for what reason?
       How long: _____ Reason _____

16. In the past year, how often did you have earaches?
    1 ☐ Not at all (*I can't remember any*)
    2 ☐ Not very often (*about once a month or less*)
    3 ☐ Quite often (*more than once a month*)

23. Have you ever been prevented for reasons of health from taking part in hard *(physical)* work, exercise, or games?

1 ☐ Yes x ☐ No

IF YES:

a. Why? _____

b. Did a doctor advise this?

1 ☐ Yes 2 ☐ No 3 ☐ Don't know

c. Are you NOW forbidden to do some of these things?

1 ☐ Yes 2 ☐ No

---

24. At the present time, do you think you are:

1 ☐ Underweight

2 ☐ About the right weight

3 ☐ Overweight

---

25. Would you say that you appear to be:

1 ☐ Thinner than most persons of your age

2 ☐ About the same as most persons your age

3 ☐ Heavier than most persons of your age

---

26. At this time, would you like to be:

1 ☐ Thinner than you are

2 ☐ About the same weight as you are

3 ☐ Heavier than you are

---

28. In the last year or two, have you had any backaches?

1 ☐ Yes, quite often

2 ☐ Yes, occasionally

3 ☐ No

---

29. Do you sleep alone in your own room?

1 ☐ Yes 2 ☐ No

IF NO:

a. Who else sleeps in the room?

1 ☐ Brother(s) 3 ☐ Father

2 ☐ Sister(s) 4 ☐ Mother

5 ☐ Other person(s)

---

30. How often do you have trouble getting to sleep or staying asleep?

1 ☐ Very often 2 ☐ Only from time to time 3 ☐ Never

33. Do you have acne *(pimples or blackheads)*?

1 ☐ Yes x ☐ No

IF YES:

a. At what age did it start?_____years

b. Do you use any treatment for it? 1 ☐ Yes 2 ☐ No

c. Have you seen a doctor about it? 1 ☐ Yes 2 ☐ No

d. How much does it bother or worry you?

1 ☐ Quite a lot 2 ☐ Some but not too much 3 ☐ Very little

4 ☐ Not at all

---

38. Now about your eating habits, do you think you eat

1 ☐ Too much 2 ☐ About the right amount 3 ☐ Too little

---

39. When did you last see a doctor for a checkup *(routine examination)*?

1 ☐ In the last year 4 ☐ Never

2 ☐ 1-2 years ago 5 ☐ I don't remember

3 ☐ Over 2 years ago

---

40. When did you last see a doctor for treatment?

1 ☐ In the last year 4 ☐ Never

2 ☐ 1-2 years ago 5 ☐ I don't remember

3 ☐ Over 2 years ago

---

41. When did you last see a dentist for a checkup *(routine examination)*?

1 ☐ In the last year 4 ☐ Never

2 ☐ 1-2 years ago 5 ☐ I don't remember

3 ☐ Over 2 years ago

---

42. When did you last see a dentist for treatment?

1 ☐ In the last year 4 ☐ Never

2 ☐ 1-2 years ago 5 ☐ I don't remember

3 ☐ Over 2 years ago

ONE LAST QUESTION

43. About how much time would you guess you spend in the usual day *(enter number of hours or fraction of hours, or zero, as appropriate)*?

a. Watching television _____

b. Listening to radio _____

c. Reading newspapers, comics, magazines _____

d. Reading books *(except comic books)* _____

All information which would permit identification of an individual or of an establishment will be held confidential, will be used only by persons engaged in and for the purpose of the survey and will be protected against disclosure in accordance with the provisions of 42 CFR Part 1.

PHS-4733-5 PAGE 1)
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DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL CENTER FOR HEALTH STATISTICS
HEALTH EXAMINATION SURVEY

Form Approved:
Budget Bureau No. 68-R1700

SUPPLEMENTAL INFORMATION FROM SCHOOL

The student whose name appears below is one of the sample of students being studied in the Health Examination Survey. This student's parent or guardian has given us written authorization to obtain information from the school. Please complete this form on the basis of school records and/or information the student's teacher or other school official may have. A pre-addressed envelope, requiring no postage, is furnished for your convenience in returning this form.

NAME OF YOUTH (Last) (First) (Middle)

HOME ADDRESS (for identification)

SAMPLE NUMBER

1 BIRTH DATE (Month) (Day) (Year)

2 WHAT IS THE PRESENT GRADE PLACEMENT OF THIS STUDENT? _____ grade.

3 HAVE ANY GRADES BEEN SKIPPED OR DOUBLE PROMOTIONS BEEN GIVEN?

2 ☐ NO 3 ☐ DON'T KNOW

1 ☐ YES → IF YES, Which grades were skipped? _____

4 HAVE ANY GRADES BEEN REPEATED FOR ANY REASON?

2 ☐ NO 3 ☐ DON'T KNOW

1 ☐ YES → IF YES, Which grades were repeated? _____

5 IF GRADES WERE REPEATED, WHAT WAS THE MAIN REASON? (Check only one)

1 ☐ EXCESSIVE ABSENTEEISM (excused)
2 ☐ TRUANCY
3 ☐ MOVED INTO MORE DIFFICULT SCHOOL SYSTEM
4 ☐ SOCIAL IMMATURITY
5 ☐ ACADEMIC FAILURE
6 ☐ OTHER (explain) _____

6 HAS THIS STUDENT BEEN ABSENT FROM SCHOOL AN UNUSUAL NO. OF DAYS DURING THE MOST RECENTLY COMPLETED SCHOOL YEAR?

2 ☐ NO 3 ☐ DON'T KNOW

1 ☐ YES → IF YES, WHAT IS THE MAIN REASON FOR THE ABSENCES? (Check only one)

1 ☐ Student's illness
2 ☐ Illness in student's family
3 ☐ Due to work (either away from home or at home for reasons other than family illness)
4 ☐ Truancy
5 ☐ Other (explain) _____

7 HOW FREQUENTLY IS ANY SPECIFIC DISCIPLINARY ACTION REQUIRED FOR THIS STUDENT?

1 ☐ FREQUENTLY
2 ☐ OCCASIONALLY
3 ☐ NEVER
4 ☐ NO BASIS FOR JUDGING WHICH OF THE ABOVE FITS THIS STUDENT

8. ARE SPECIAL RESOURCES NEEDED OR CURRENTLY BEING USED FOR THIS STUDENT?

2 ☐ NO **(SKIP TO QUESTION 9)**

1 ☐ YES → IF YES, complete the following only for those special resources needed or currently being used by this youth:

SPECIAL RESOURCE	RESOURCE NEEDED (Check one)			REASON FOR NON-USE (Check primary reason)			
	BEING USED	NOT AVAILABLE	AVAILABLE BUT NOT USED	OVER-CROWDED	STUDENT OBJECTS	PARENTS OBJECT	OTHER (specify)
a. For the gifted							
b. For the mentally retarded							
c. For "slow learners" not classed as mentally retarded							
d. For emotionally disturbed							
e. For orthopedically handicapped							
f. Special facilities for the "hard of hearing"							
g. Special facilities for the visually handicapped							
h. Speech therapy							
i. Remedial reading							
j. English for students from non-english speaking environments							
k. Remedial training in special subject area(s)							
l. Other resources needed (specify)							

9. IN TERMS OF ADJUSTMENT, WHICH OF THE FOLLOWING BEST DESCRIBES THIS STUDENT?

1 ☐ SEEMS WELL ADJUSTED.

2 ☐ SEEMS SOMEWHAT MALADJUSTED.

3 ☐ SEEMS SERIOUSLY MALADJUSTED.

4 ☐ NO BASIS FOR JUDGING WHICH OF THE ABOVE FITS THIS STUDENT.

10. IN TERMS OF INTELLECTUAL ABILITY, WHICH OF THE FOLLOWING BEST DESCRIBES THIS STUDENT?

1 ☐ ABOVE AVERAGE

2 ☐ AVERAGE

3 ☐ BELOW AVERAGE

4 ☐ DON'T KNOW STUDENT WELL ENOUGH TO JUDGE.

11. IN TERMS OF ACADEMIC ACHIEVEMENT, IS THIS STUDENT:

1 ☐ IN THE UPPER THIRD OF HIS CLASS

2 ☐ IN THE MIDDLE THIRD OF HIS CLASS

3 ☐ IN THE LOWER THIRD OF HIS CLASS

4 ☐ DON'T KNOW → **IF DON'T KNOW,** *Specify reason* _____

12. IN TERMS OF POPULARITY WITH OTHER STUDENTS, IS THIS STUDENT:

1 ☐ ABOVE AVERAGE IN POPULARITY

2 ☐ ABOUT AVERAGE IN POPULARITY

3 ☐ BELOW AVERAGE IN POPULARITY

4 ☐ DON'T KNOW

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REV. 3/66

FORM APPROVED
BUDGET BUREAU NO. 68-R1700

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DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL HEALTH SURVEY

Sample No.

HEALTH BEHAVIOR

NAME OF YOUTH *(Last, First, Middle)*

SEX ☐ Male ☐ Female

AGE

INSTRUCTIONS: On the following pages you will find a set of questions dealing with your health behavior. Since every person is different, there are no "standard" answers to the questions; just answer them as fully and honestly as you can. Your answers will be kept confidential. Do your best to pick the most likely answer from among the choices given. Only if you really don't know the answer check "Don't know."

1. Looking ahead, what would you like to do about school? *(Check one only)*

   1 ☐ Quit school as soon as possible
   2 ☐ Finish high school
   3 ☐ Get some college or other training after high school
   4 ☐ Finish college and get a college degree
   5 ☐ Finish college and take further training *(medical, law or other professional school, etc.)*

2. What do you think will happen about school? (CHECK ONE ONLY)

   1 ☐ Quit school as soon as possible
   2 ☐ Finish high school
   3 ☐ Get some college or other training after high school
   4 ☐ Finish college and get a college degree
   5 ☐ Finish college and take further training *(medical, law or other professional school, etc.)*

3. Have you ever had a date? *(That is, a boy and girl going out together, whether or not anyone else was along.)*

   1 ☐ Yes x ☐ No

   IF YES: How old were you when you first had a date? _____ years

4. Who makes most of the decisions on the following: *(Check one in each row.)*

	You alone (1)	Father (2)	Mother (3)	Both parents (4)	Father and you (5)	Mother and you (6)	Parents and you (7)	Other person(s) (8)	Nobody (9)
a. Choosing your clothes									
b. How to spend your money									
c. Which friends to go out with									
d. How late you can stay out									

6. How many times have you had anything to do with police, sheriff, or juvenile officers for something you did or they thought you did?

1 ☐ Once 2 ☐ Twice 3 ☐ More than twice 4 ☐ Never

IF ONCE OR MORE:

a. What was wrong?_____

_____

b. Were you arrested? 1 ☐ Yes 2 ☐ No 3 ☐ Don't know

c. In what way were you punished?_____

_____ 7 ☐ Not at all

---

7. How old were you when you smoked for the first time?_____Years

☐ Never tried (SKIP TO QUESTION 10)

---

8. How old were you when you began smoking regularly?_____Years

☐ Never have smoked regularly

---

9. About how many cigarettes do you smoke per day?

1 ☐ I don't smoke at all

2 ☐ I don't smoke cigarettes *(but I smoke a pipe or cigars)*

3 ☐ Less than 1/2 pack

4 ☐ 1/2 pack but less than 1 pack

5 ☐ 1 pack but less than 2 packs

6 ☐ 2 packs or more

---

12. How important do you think it is for a young person to have each of the qualities or characteristics listed below? *(Put one check-mark in each row.)*

	Extremely Important (1)	Important (2)	Slightly Important (3)	Unimportant (4)
a. To be neat and clean				
b. To be able to defend oneself				
c. To have self-control				
d. To be happy				
e. To obey one's parents				
f. To be dependable				
g. To be considerate of others				

12. Continued

h. To face life's problems calmly				
i. To obey the law				
j. To be ambitious				
k. To know how to keep in good health				

APPENDIX III

CONVERSION TABLES FOR RAW SCORES ON 29 TAT VARIABLES AND PERCENTILE EQUIVALENTS FOR TAT COMPOSITE SCORES

Table I. Conversions of raw scores on the 29 TAT variables to standard scores

Raw score	Standard score
Single verbs	
0-2	28
3-5	29
6-8	30
9-11	31
12-14	32
15-17	33
18-20	34
21-23	36
24-26	37
27-29	38
30-32	39
33-35	40
36-38	41
39-41	42
42-44	43
45-47	44
48-50	45
51-53	46
54-56	47
57-59	49
60-62	50
63-65	51
66-68	52
69-71	53
72-74	54
75-77	55
78-80	56
81-83	57
84-86	58
87-89	59
90-92	60
93-95	62
96-98	63
99-101	64
102-104	65
105-107	66
108-110	67
111-113	68
114-116	69
117-119	70
120	71
Nouns	
0-2	30
3-5	31
6-8	32
9-11	33
12-14	34
15-17	35
18-20	37
21-23	38
24-26	39
27-29	40
30-32	41
33-35	43
36-38	44
39-41	45
42-44	46
45-47	47
48-50	48
51-53	50
54-56	51
57-59	52
60-62	53
63-65	54
66-68	56
69-71	57
72-74	58
75-77	59
78-80	60
81-83	61
84-86	63
87-89	64
90-92	65

Raw score	Standard score
Nouns—Con.	
93-95	66
96-98	67
99-101	69
102-104	70
105-107	71
108-110	72
111-113	73
114-116	74
117-119	76
120	77
Pronouns	
0-2	29
3-5	31
6-8	32
9-11	33
12-14	34
15-17	35
18-20	36
21-23	37
24-26	39
27-29	40
30-32	41
33-35	42
36-38	43
39-41	44
42-44	46
45-47	47
48-50	48
51-53	49
54-56	50
57-59	51
60-62	52
63-65	54
66-68	55
69-71	56
72-74	57
75-77	58
78-80	59
81-83	61
84-86	62
87-89	63
90-92	64
93-95	65
96-98	66
99-101	68
102-104	69
105-107	70
108-110	71
111-113	72
114-116	73
117-119	74
120	76
Possessive adjectives	
0	34
1	35
2	37
3	39
4	41
5	43
6	45
7	46
8	48
9	50
10	52
11	54
12	56
13	57
14	59
15	61
16	63

Raw score	Standard score
Possessive adjectives—Con.	
17	65
18	67
19	69
20	70
21	72
22	74
23	76
24	78
25	80
26	81
27	83
28	85
29	87
30	89
Corrections	
0	35
1	37
2	40
3	42
4	44
5	46
6	48
7	50
8	52
9	55
10	57
11	59
12	61
13	63
14	65
15	67
16	69
17	72
18	74
19	76
20	78
Repetitions	
0	40
1	42
2	43
3	45
4	47
5	49
6	51
7	53
8	55
9	56
10	58
11	60
12	62
13	64
14	66
15	68
16	69
17	71
18	73
19	75
20	77
21	79
22	80
23	82
24	84
25	86
Adverbs	
0	37
1	40
2	44
3	48

Raw score	Standard score
Adverbs—Con.	
4	51
5	55
6	59
7	62
8	66
9	69
10	73
11	77
12	80
13	84
14	87
15	91
Dialogue	
0	44
1	64
2	84
3	104
4	124
5	144
Card rejection	
0	46
1	70
2	93
3	116
4	139
5	162
Present reference	
0	-63
1	-40
2	-16
3	6
4	30
5	53
Level of interpretation	
0	-27
1	-20
2	-14
3	-8
4	-1
5	4
6	10
7	17
8	23
9	29
10	36
11	42
12	48
13	55
14	61
15	67
Situation complexity	
0	-22
1	-16
2	-10
3	-4
4	1
5	7
6	13
7	19
8	25
9	31
10	38

Raw score	Standard score
Situation complexity—Con.	
11	44
12	50
13	56
14	62
15	68
Murder, killing	
0	43
1	81
2	118
3	156
4	193
5	231
Death	
0	42
1	69
2	96
3	124
4	151
5	178
Aggression	
0	40
1	65
2	89
3	113
4	137
5	161
Hostile antagonism	
0	42
1	62
2	83
3	103
4	123
5	143
Unhappy outcome	
0	40
1	60
2	80
3	99
4	119
5	139
Mean, rejecting	
0	41
1	60
2	80
3	99
4	118
5	137
Morbid mood quality	
0	47
1	130
2	214
3	297
4	380
5	464
Bizarre theme	
0	47
1	116
2	184
3	252
4	320
5	388

Raw score	Standard score
Outcome	
0	27
1	36
2	44
3	53
4	61
5	70
Happy outcome	
0	35
1	46
2	56
3	67
4	77
5	88
Future reference	
0	29
1	38
2	47
3	56
4	65
5	74
Past reference	
0	29
1	39
2	49
3	58
4	68
5	77
Goal-oriented behavior	
0	31
1	41
2	50
3	60
4	70
5	80
Causally connected statements	
0	31
1	40
2	49
3	59
4	68
5	77
Kind, loving	
0	37
1	51
2	66
3	80
4	94
5	108
Happy, glad	
0	42
1	65
2	88
3	111
4	134
5	158
Expression of feeling	
0	21
1	31
2	41
3	51
4	61
5	71

Table II. Percentile equivalents for TAT composite scores of youths 12-17 years of age, by sex and TAT composite

Composite score	Percentile score		Composite score	Percentile score		Composite score	Percentile score	
	Male	Female		Male	Female		Male	Female
I: Verbal competence			II: Conceptual maturity			III: Emotionality—Con.		
351-355	1	1	91-110	1	1	516-530	98	98
356-360	2	2	111-140	1	2	531-570	98	99
361-365	4	3	141-145	2	3	571-590	99	99
366-370	5	4	146-150	2	4			
371-375	7	5	151-155	3	4			
376-380	9	8	156-160	4	4	IV: Narrative fluency		
381-385	12	12	161-165	4	6			
386-390	14	15	166-170	8	8	296-305	3	3
391-395	20	19	171-175	12	12	306-310	5	4
396-400	24	23	176-180	17	19	311-315	7	6
401-405	29	28	181-185	23	23	316-320	9	7
406-410	34	34	186-190	31	32	321-325	11	8
411-415	38	38	191-195	48	46	326-330	13	9
416-420	42	41	196-200	58	53	331-335	17	13
421-425	47	44	201-205	68	64	336-340	19	17
426-430	51	48	206-210	78	76	341-345	21	18
431-435	55	52	211-215	88	87	346-350	23	22
436-440	58	55	216-230	99	99	351-355	26	24
441-445	61	61				356-360	29	28
446-450	65	63				361-365	33	32
451-455	68	68	III: Emotionality			366-370	34	35
456-460	70	69				371-375	38	36
461-465	74	71	356-370	32	30	376-380	42	40
466-470	76	76	371-375	45	43	381-385	44	44
471-475	78	76	376-380	52	51	386-390	48	45
476-480	80	79	381-385	53	51	391-395	52	50
481-485	82	82	386-390	61	63	396-400	57	55
486-490	83	82	391-395	64	67	401-405	60	57
491-495	85	85	396-400	67	69	406-410	65	61
496-500	86	86	401-405	74	73	411-415	67	63
501-505	87	86	406-410	77	75	416-420	70	65
506-510	88	87	411-415	78	76	421-430	76	72
511-515	90	89	416-420	81	81	431-435	78	74
516-520	90	90	421-425	82	82	436-440	81	78
521-525	91	90	426-430	83	85	441-445	81	80
526-530	91	91	431-435	86	87	446-450	85	82
531-535	92	92	436-440	86	88	451-455	86	86
536-540	92	93	441-445	88	90	456-460	88	88
541-545	93	94	446-450	90	91	461-465	92	88
546-550	94	94	451-455	90	92	466-470	92	92
551-555	94	95	456-460	91	93	471-475	93	94
556-570	95	97	461-470	92	94	476-480	93	94
571-600	96	97	471-480	93	95	481-485	94	94
601-635	97	97	481-485	95	95	486-490	94	95
636-670	98	97	486-490	95	96	491-495	96	96
671-695	99	98	491-500	96	96	496-505	96	98
696-700	99	99	501-515	97	97	506-510	97	99
						511-515	98	99
						516-520	99	99

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